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ABSTRACT

This catalogue takes the case study approach in presenting a descriptive inventory of what is being done to train and retrain teachers in the use of audiovisual media. Included are the following sections: (a) training of specialists in audiovisual media and educational technology, dealing with training "generalists," specialists for particular geographical sectors, specialized researchers, subject specialists, specialists in production and direction, specialized technicians, and administrative specialists; (b) training of future teachers; and (c) initial and advanced training and retraining of inservice teachers. Concluding remarks and a bibliography are included. (JCW)

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Robert LEFRANC

TRAINING OF TEACHERS IN THE USE OF AUDIO-VISUAL MEDIA

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The Council for Cultural Co-operation was set up by the Committee of Ministers of the Council of Europe on 1 January 1962 to draw up proposals for the cultural policy of the Council of Europe, to co-ordinate and give effect to the overall cultural programme of the organisation and to allocate the resources of the Cultural Fund. It is assisted by three permanent committees of senior officials; for higher education and research, for general and technical education and for out-of-school education. All the member governments of the Council of Europe, together with Greece, Finland, Spain and the Holy See are represented on these bodies (1).

In educational matters, the aim of the Council for Cultural Co-operation (CCC) is to help to create conditions in which the right educational opportunities are available to young Europeans whatever their background or level of academic accomplishment, and to facilitate their adjustment to changing political and social conditions. This entails in particular a greater rationalisation of the complex educational process. Attention is paid to all influences bearing on the acquisition of knowledge, from home television to advanced research; from the organisation of youth centres to the improvement of teacher training. The countries concerned will thereby be able to benefit from the experience of their neighbours in the planning and reform of structures, curricula and methods in all branches of education.

Since 1963 the CCC has been publishing, in English and French, a series of works of general interest entitled "Education in Europe", which records the results of expert studies and intergovernmental investigations conducted within the framework of its programme. A list of these publications will be found at the end of the volume.

Some of the volumes in this series have been published in French by Armand Colin of Paris and in English by Harraps of London.

These works are being supplemented by a series of "companion volumes" of a more specialised nature to which the present study belongs.

General Editor:

The Director of Education and of Cultural and Scientific Affairs, Council of Europe, Strasbourg (France).

The opinions expressed in these studies are not to be regarded as reflecting the policy of individual governments or of the Committee of Ministers of the Council of Europe.

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FOREWORD

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Between 1964 and 1972 a working party of the Committee on General and Technical Education, under my leadership, was assigned by the Council for Cultural Co-operation of the Council of Europe the task of studying schemes for training teachers in the use of audio-visual media.

Using questionnaires launched in 1969, revised in 1971, brought up to date and supplemented in 1972, the working party set out to build up a picture of the activities in this field in all the member countries of the Council of Europe. The information received was discussed at working meetings and further information and details were requested. This resulted in a weighty but incomplete dossier made up of the replies and examples of courses and types of training which had been sent in.

After the working party concluded its work in 1972, the Council of Europe asked me to try to weigh up the findings on the basis of the most characteristic examples and to define current and foreseeable trends

This I have tried to do by drawing up a sort of descriptive inventory of what is being done to train and, where necessary, retrain teachers in the use of audio-visual media.

Conscious of the increasing numbers of my colleagues who are involved in this field I have tried to be practical and, wherever possible, to give concrete examples of programmes which may be of use to them.

I have not attempted to provide an exhaustive inventory (this was not possible owing to lack of sufficient information from a number of countries), but have opted instead for a case study approach describing different types of training, taken from different countries, which struck me as being both significant and transferable.

I feel that a catalogue arranged and annotated in this way will be more useful to them than a set of theoretical ideas on the subject which they can easily find in other publications.

Robert Lefranc

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INTRODUCTION

1. Familiarisation of teachers with mass media, even if they do not use them in their own classes, has proved necessary, since they must at least try to incorporate in their teaching the random ideas gleaned by their pupils from the "parallel school". This they cannot do effectively unless they themselves are fairly familiar with the media.

However, the most important thing is to train teachers in the rational use of audio-visual media in their own subjects or branch of education. Otherwise, how can one really talk in terms of modern, effective teaching? The introduction of modern techniques into schools can be one of the most powerful keys to innovation if it is in the hands of trained and knowledgeable teachers.

Between a fairly rapid general knowledge of mass media in the modern world and an in-depth, systematic training for specific, well-defined functions, a whole range of training schemes is required.

The variety of these schemes is increased by the fact that their methods and objectives differ greatly, depending on whether they are designed to train future teachers in training colleges or to retrain in-service teachers, the number of the latter being considerable and their availability limited.

2. Moreover, such schemes cannot be devised and arranged solely for teachers. Other professional categories also require training: all-round experts fully employed in the study and promotion of audio-visual media, experts in a single technique used in many disciplines or in many techniques used in a single discipline, specialised research workers, specialists in the production of media and specialists in management in this sphere.

3. It was hard enough to meet the needs for basic or further training in the wide and varied field of audio-visual media but there is now a growing demand that teachers and members of the other professions listed above should be trained not only in the production and use of audio-visual media but in activities within the much wider field of educational technology. This means not only the introduction of a new dimension but the birth of a new systems approach which, in terms of both hardware and software, involves programmed learning and computer assisted instruction, as well as audio-visual techniques. Consequently, some of the courses analysed below include an introduction to these fields, but it is not the purpose of this report to study specialised courses in these two techniques which have recently been introduced in schools.

4. The range of training available in Europe is considerable and differs greatly in length, varying from one day to protracted university studies, from comprehensive courses to regular, spaced-out sessions, from supplementary information to independent courses and from simple handling of equipment to considerations of theory. Too often there seems to be a tendency to make do with a rapid grounding in cases where thorough retraining is called for. In the final analysis, the nature, duration and value of training schemes depend on the role of the individual in the audio-visual sphere but also, and above all, on the importance which university and school authorities attach to such media, varying from an auxiliary and very subordinate role to their completed integration with teaching methods and even educational systems, which would be inconceivable or unworkable without them.

- I -

TRAINING OF SPECIALISTS IN AUDIO-VISUAL MEDIA AND EDUCATIONAL TECHNOLOGY

8

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The provision of facilities for the production and dissemination of audio-visual media, the creation of establishments for specialised training (by and for audio-visual media) and the need for appropriate research, call for the training of specialists who will make their careers in this field in full-time occupations as experts, training instructors, research workers, producers, directors, technicians or specialised administrators. The idea has even been put forward of training educational technologists or educational "engineers".

But what is meant by the term? In 1970, in preparation for a seminar held by the German National Commission for UNESCO at Konstanz, Professor LEJA conducted a poll on the subject among 150 assistant and student lecturers and undergraduates of the University of Poznan (Poland). The replies differed very widely; they are listed below in order of their percentage.

No. in order	Suggested definitions of the term "educational technologist"	No. of replies in %
1	An educational technologist is a good methodologist who not only specialises in education itself but is also concerned with the development and use of modern teaching aids and techniques.	16.6%
2	Profession requiring the ability to devise theory courses for teaching purposes, to adapt media and methods to the needs of a given educational process and to indicate suitable teaching techniques for the achievement of educationally desirable ends.	15.5%
3	A person responsible for the inclusion of didactic principles and media in the educational process.	14.4%
4	Organiser of the educational process with an ability to transmit to others the art of learning and teaching.	11.1%
5	Profession concerned with developing the best possible educational techniques.	10.5%
6	A teacher-specialist in his own field possessing the necessary knowledge to organise and co-ordinate the modern educational process.	8.0%
7	A person who develops teaching methods and techniques and assesses their effectiveness.	7.3%
8	An educational technologist is a superior version of the modern teacher.	5.2%
9	A scientific worker concerned with technical aspects of imparting information in different types of schools.	4.6%
10	Educational technology is a science concerned with the production of educated people.	3.6%
11	A person responsible for introducing new teaching techniques into the educational process, thereby rationalising it and adding to the range of pedagogic influences on the pupil.	2.4%
12	A specialist in the sphere of "moulding" the specific material constituted by man. Hence a master pedagogue equipped with didactic knowledge and technical aptitudes as well as methodological knowledge in relation to technical media and facilities in the educational and didactic process.	0.1%
	Total of 150 replies	100.0%

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At the above-mentioned symposium an attempt was made to analyse the functions of an educational technologist. They were defined as follows: to analyse, organise, plan, develop, monit, evaluate and supervise educational systems based on scientific methods.

In fact these functions are extremely complex and diverse as the report on the symposium indicates further on.

The general task of the educational technologist is:

- the contribution to the development and organisation of educational resources to effect student learning;
- the constant formative evaluation of this process.

A number of activities in the field of educational technology were identified in the past. Some of the more important ones are:

- curriculum development, revision, consultation, supervision;
- school plant management;
- guidance and counselling;
- definition and pedagogical evaluation of the objectives;
- instructional materials development and revision.

We are also seeing the emergence of different and complementary subjects and professions which, in Europe generally, give rise to different courses of training, in different institutions in many cases.

I Producer developers
II Consultant developers
III Researchers
IV Managers

The training function would normally be assumed by II and III.

The professions can be centred around, or comprise combinations of the following tasks:

- teaching methods;
- technical equipment;
- structuring;
- planning;
- cost analysis;
- evaluation.

Quite a number of specialists are needed, eg:

a. Curriculum specialists for a permanent revision of educational and learning objectives. They have to describe the advantage of the learning objectives.

b. Educational managers for securing an efficient interplay of the specialists, technical media and the students and providing professionally for a good organisational pattern for instructional systems.

c. Subject matter specialists who are trained in the field of selecting well described contents of instruction - according to a number of given criteria.

d. Didacticians being experts in methods and media as well.

e. Media specialists.

f. Experts in tests and measurement.

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The complexity of the training required is brought out still more in the actual report on the symposium which lists the subjects regarded as a necessary part of a course for future educational technologists. The figures in brackets indicate the number of experts who considered that subject to be indispensable.

psychology (5)
educational economics (5)
educational sciences (4)
curriculum studies (4)
programming (4)
cybernetics (4)
methods in research (3)
test construction (3)
media techniques (3)
system theory (3)
psychology of learning (3)
information science (3)
sociology (2)
operational research (2)
development psychology (2)
social psychology (2)
mathematical statistics (2)
mathematics (2)
data theory (2)
political science (1)
futurology (1)
algorithm theory (1)
teaching methodology (1)
evaluation theory (1)
philosophy of education (1)
psychiatry (1)
electronics (1)
mathematical logic (1)
networks (1)
critical path analysis (1)
physics (1)
specific fields (1)
neuro-physiology and bio-chemistry of learning (1)

The symposium also discussed at what level these studies should take place.

Most of the experts recommend college or university level for the training of educational technologists, but there is no agreement among them about the level of studies at which this training is to start.

Briefly, there are four different possibilities mentioned:

1. Training as an educational technologist during a period of basic study.
"University level: basic studies in a series of obligatory and advanced studies including interpretation of scientific work but not scientific work done by the students themselves in one or more specific branches of the total curriculum. "A specialised basic study at a faculty of arts, mostly containing mathematics, pedagogy and psychology."

2. Training on an advanced level of studies.
"There should be two levels of entry:
I - immediately after post-graduate teaching diploma;
II - after at least five years of experience."
"Universities. Fully fledged teachers should specialise in advanced studies, including correspondence studies."

3. Training at undergraduate as well as at graduate levels:
"Educational technology should be offered at undergraduate and graduate levels".

4. Specialised professional training at engineering schools.

One of the merits of the symposium was that, following customary procedure in educational technology, it set out to define the objectives of a satisfactory training course, drawing freely on those of the University of Sussex in this domain.

1. <u>The role of educational technology</u>

A systematic and practical study of the ways in which modern media of communication can extend and improve teaching and learning.

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1.1 To study fundamental problems of the British educational system and different proposed methods of tackling them.

1.2 To study the nature of visual communication.

1.3 To study the representation of experience through audio-visual media.

1.4 To study advantages and disadvantages of various modes of presentation and the financial, organisational and training problems involved in using them.

1.5 To study problems and trends in curriculum development and the role of educational technology in this context.

1.6 To study findings of psychologists relevant to curriculum development and educational technology.

1.7 To study "the software gap" and the contribution that present and future sources of software can make to bridging it.

1.8 To study problems of innovation in education and the implications of these for the development of educational technology.

2. Production and evaluation of software

Appropriate training in the production and evaluation of various types of teaching materials and methods.

2.1 To develop the ability to analyse and evaluate graphic and photographic materials.

2.2 To develop the skills needed to create graphic and photographic materials.

2.3 To develop skills in television production.

2.4 To evaluate software in the student's own (or a related) curriculum area.

2.5 To carry out project work in the development of audio-visual materials.

3. Course development and programmed learning

Practice in applying principles of course development and programmed learning.

3.1 To learn to define teaching and learning objectives as precisely as possible.

3.2 To be able to classify objectives according to a number of classification schemes.

3.3 To be able to apply principles of systems analysis to course development and to the production of educational materials.

3.4 To be able to devise appropriate methods of assessment and understand their advantages and limitations.

3.5 To acquire useful techniques for preparing programmed materials.

3.6 To carry out project work in the development of programmed materials.

4. In-service education

Equipping students to train other teachers in educational technology.

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4.1 To specify different levels of in-service education and to define appropriate objectives.

4.2 To recognise the role of in-service education in the educational system and draw up model operational plans for in-service education in specific regions.

4.3 To design in-service courses for different locations and audiences and with different groups of objectives.

4.4 To study the contribution of an information and advisory service to in-service education.

4.5 To study the role of teacher centres in in-service education.

4.6 To evaluate learning materials available for use in in-service education.

4.7 To carry out project work in the development of learning materials for use in in-service education.

4.8 To participate in the planning and presentation of in-service courses.

5. Resource planning

Problems in resource planning and the design of learning spaces.

5.1 To study problems of deployment of teachers (ie team teaching, release time, etc...).

5.2 To study problems of deployment of space and the design of learning spaces.

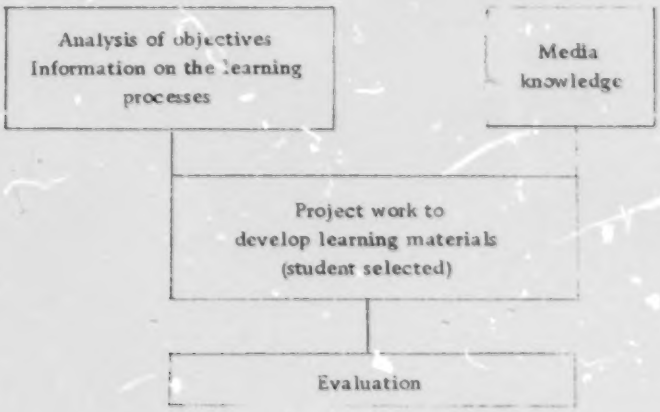
5.3 To study problems of the selection, deployment and maintenance of equipment.

5.4 To study the planning and operation of resource centres.

5.5 To study the resource implications of independent study methods.

5.6 To study the use of cost benefit criteria in education with special reference to educational technology.

On the basis of these objectives and of those put forward by BROWN and NORBERG (Administering educational media, p. 162), one of the symposium's working parties drew up a model course, an outline of which is given below.



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An alternative course design was also developed, which consisted of three parts:

1. An introduction to educational technology based on existing patterns of educational organisations.

2. An introduction to multi-media systems.

3. An introduction to individualised study (self-study) making use of multi-media systems.

PART 1: An introduction to educational technology.

Phase 1 - How to make the students problem-oriented?

The student has to learn to isolate different system-elements of teaching-learning situations, eg

- objectives
- content(s)
- methods
- media
- teacher behaviour
- group processes
- learner behaviours.

This is realised by:

- videotapes of teaching-learning situations
- examples of ETV-programmes
- programmed instruction.

Phase 2 - How to classify different types of learning? (Mager, Bloom, Gagne)

In this phase special stress should be put on the conditions of learning and not on the outcomes of learning.

Phase 3 - How to identify objectives?

This is done using televised and programmed material (see Phase 1).

Phase 4 - How to be conscious of the political and social context of stated objectives?

This could be accomplished by a course on curriculum development.

Phase 5 - How to understand teaching as the organisation of learning situations?

(cf. Gagné: External conditions of learning in relation to types of learning.)

Phase 6 - How can a teacher integrate the use of conventional media into his classroom work?

This should be tackled in laboratory sessions.

Phase 7 - How to plan small instructional units?

Gagné's analysis should be used. Alternative solutions should be developed.

PART 2: An introduction to multi-media systems.

Phase 1 - How to integrate the learning experiences of the first part with an introduction to multi-media systems?

This phase should be focussed on the external conditions of learning, being a starting point for a rational design of multi-media systems.

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Phase 2 - How to choose media?

(Briggs, Campeau, Gagné, Tosti, etc.)

Phase 3 - How to plan small instructional units?

(This instructional phase parallels Phase 7 of Part 1.)

Phase 4 - How to produce an instructional unit?

The student-teacher must have experience in producing audio-visual materials. This implies co-operation with technically equipped institutions. Otherwise the design of the basic course is threatened by being restricted to verbal media.

Phase 5 - How to find out about existing multi-media systems?

This information should be correlated with the former phases and special attention should be paid to:

- the gap between operating systems and the theory of systems design. eg the lack of any individualisation in present multi-media systems;
- the influences of multi-media systems on group behaviour, whose consequences are still unknown.

Phase 6 - How to understand teacher-roles in multi-media systems?

The student must be aware of a growing differentiation of the teacher-role, eg planning the learning process, guiding this process and promoting small group work.

Phase 7 - How to train the student-teacher in working in small groups on the design of multi-media systems?

(This phase parallels Phase 7 of Part 1.)

PART 3: An introduction to individualised study (self-study)

Phase 1 - How to understand the arguments for individualisation?

(Individual differences, social determinants.)

Phase 2 - How to find relevant criteria for designing multi-media systems?

Phase 3 - How to develop a short multi-media course based on individualised learning? (4 weeks)

Phase 4 - How to develop test items for this kind of individualised instruction?

Phase 5 - How to develop appropriate skills in small group work?

Phase 6 - How to evaluate this system?

Having established the principles, let us see how they are applied in the European educational system. We find that there are already a number of institutions, mostly in higher education, which offer a general type of training in audio-visual methods and techniques as a whole or in educational technology. Courses also exist for research specialists, production specialists, technicians and administrators.

I - 1. Training of "generalists"

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I am aware of the ambiguity of this term but by "generalists" I mean people, usually former teachers, trained on sufficiently broad lines to make them, paradoxically, "specialists" in a general field, educators who have decided to devote their whole professional energies to audio-visual media and educational technology and seek to acquire extensive knowledge over a wide area, even though they may decide to specialise more in their subsequent studies.

The symposium at Konstanz provided a good definition of the pre-conditions for such courses and rightly emphasised the importance of both broad objectives and a broad training.

In realising a basic course we have to cope with many constraints. The committee spent some time in discussing problems concerned with how the lessons of these educational technology training programmes could be applied in conditions which were not receptive to their integration. It is absolutely necessary that, in developing courses, the actual situation of teachers should be kept in mind. It is the problem of a balance between "folkloristic" tendencies (cf. Miles, Innovation on Education) in present situations and a future oriented approach.

The committee developed some ideas about the prerequisites for courses in educational technology.

Prerequisites.

Specification or requirements and prerequisites in respect of students, teachers and other personnel, equipment and systems.

Even within a teacher-centred, didactic, hierarchically structured system it is possible to change the attitudes, value structures, knowledge and skills and behaviours of students. What is essential is that a student either possess or can acquire the curriculum knowledge required for setting objectives, and designing project activities and evaluations. The professor should be capable of making intelligent judgements and suggestions in a range of curriculum areas and be able to use curriculum advisors (eg other professors, research students). He should also be a master of techniques of instructional design and evaluation. He should have experience in co-operating with AV-technicians. He should have experience of research in multi-media instruction and programmed instruction as well as in system development.

The course professor is one key element in this system. Another is the technical assistant who must sometimes assume the role of a professor - as well as organising the facilities, advising on media and carrying out technical duties. The facilities for media familiarisation should include: audio-tape recorder, slide- and overhead-projector, loop and/or movie projector. In addition, text reproduction (spirit duplicator or better) is needed.

Self-instruction in equipment control and self-management in team work for tasks, evaluation, discussion and invention is essential to change students' conceptions of professor/student roles and to develop work aimed at student participation, group work, and pupil autonomy - the counsellor, advisor and critic aspects of teaching becoming assimilated through imitation and through interaction between groups. Information transmission and reception is facilitated when students need to find information before making decisions and co-operatively assemble abstracts and examples, share experience and skills and learn how to call on other people to get expert advice etc.

The course must provide opportunities for using taxonomic classifications and appraising them comparatively. It should also give practice in developing alternative systems in the face of more and more restrictive (and realistic) constraints of time, equipment, etc. Specific areas of knowledge to be acquired during the course are those concerned with analysis of objectives, tasks, learning processes, stimulus conditions and evaluation methods. Such a scheme is probably transferable to developing countries. There are already, eg in countries like India, skilled educational technology experts. Where they are scarce, teacher training professors will need to be educated and trained in advance.

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If teachers who receive training in educational technology are employed in schools which resist innovation it is important that there should be supporting services which maintain and reinforce attitudes and practice of educational technology. Such services as local teachers' centres (dedicated to the spread of innovation), opportunities for reunion with other innovating teachers, participation in experimental projects or development work sponsored by a university or education ministry, are needed to help these teachers to resist the constraints of traditional teaching environments and discouragement by colleagues or principals.

But members of the symposium also reached the conclusion that no single course would be sufficient and that, even in the training of consultants and specialists in educational technology, courses of different types are needed. The table below outlines their proposals.

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Population	Researchers Consultants for national development	Producers and directors Consultants for management and local development Teacher trainers (in-training) In-service trainers (givers of long courses)	Trainers (givers of short courses) After-care consultants Teacher educators (updating) Managers Team leaders for local development Information experts	Teachers Managers Support personnel
Training mode	Courses (3 years) Information service	Courses (1 year) Information service Consultancy	Courses (2-10 weeks) Projects Information service Consultancy	The basic course (group A) Short courses (1 day to 2 weeks) Projects Consultancy Information service
Location	National and international	National and international	Regional	Local
Prerequisites	Graduates	1. Teachers in service 2. Teacher educators 3. Graduates (production team should contain some of each) Local consultants and teacher educators must be from 1 or 2	1. Teachers in service 2. Support personnel 3. Managers	

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Hence the variety of training schemes introduced in Europe by a number of specialised bodies which we shall quote in illustration.

I - 1. - a.

The University of Sussex (Great Britain) has, since 1968, been running a one-year course based on the very wide objectives defined earlier (pages 9, 10, 11) which fall under 5 headings:

- the role of educational technology;
- production and evaluation of software;
- course development and programmed learning;
- in-service education;
- resource planning.

The course is finally focused on an in-depth analysis of educational technology, as the description given in the report on the Konstanz symposium shows.

The Sussex diploma in educational technology is a one-year full-time advanced course offered by the School of Educational Studies of the university in association with the Brighton College of Art. It is intended for qualified teachers with at least five years' experience, educational administrators and lecturers in colleges of education, technical colleges and universities; other applicants may be considered. Those who complete the course will be trained to select, produce and evaluate educational materials, assist in resource planning, train teachers in educational technology and organise developments in this field. The course is intended to help meet the national need for trained experts in educational technology, and, in order to justify the time and expense of running a course in educational technology at the advanced level, it concentrates on training people who will then be qualified to train other teachers and advise on important decisions regarding the introduction of new techniques, materials and equipment. The main objectives of the course are as follows:

1. To provide a systematic and practical study of the ways in which modern media of communication can extend and improve teaching and learning.

2. To give appropriate training in the production and evaluation of various types of teaching materials and methods.

3. To give practice in applying principles of course development and programmed learning.

4. To equip students to train other teachers in educational technology; and

5. To tackle problems in resource planning and the design of spaces.

Two special problems arise in an advanced course of this kind, the problem of unity and the problem of diversity. The problem of unity arises from the independent development of the disciplines which constitute educational technology, eg television and film productions, use of audio-visual resources, programmed learning, etc. This has often led to a situation in which each specialist applies a particular medium or method to any problem for which it seems relevant with little regard for the potentialities of other methods. The term "educational technology" has signified an attempt to amalgamate these separate specialisms in a problem-oriented rather than a media-oriented or a method-oriented approach, and the ideal educational technologist needs to be sufficiently knowledgeable about all these methods and media to be able to select the appropriate combination for each problem. But at present most of us have been trained only in one aspect of educational technology and lack the necessary breadth of experience. If the course is to have some unity and the students are to make their own synthesis, carefully planned team teaching is necessary; it cannot be taught as a series of separate and apparently unrelated seminars.

The problem of diversity is caused by the very different skills, experiences and objectives that the students bring to the course. In order to make the most of this we have tried to create a team-learning situation in addition to a team-teaching situation; and have made it clear that quite often students will be part of the teaching team and faculty part of the learning team. This helps solve

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the problems of differential entry, but we also have to solve the problem of differential objectives by allowing the students to specialise in those aspects of educational technology most relevant to their interest and their intended careers. We have tried to cater for the diversity of their objectives in three ways; by allocating a personal tutor, by flexible assignments, and by project work. Each student can discuss his course and career problems with his personal tutor who can help him maintain a balance between breadth and depth. Many of the assignments are specifically designed for an individual student or pair of students; and some of the second term and nearly all of the third term will be spent on a major project. The project will be related to the situations to which he is returning and will probably be concerned either with the institutions from which he was seconded or with part of the ongoing work of the centre, particularly the Sussex resources for learning scheme.

It is also important to strike a balance between providing the student with a repertory of skills, techniques, and methods, and applying this repertory to educational problems which range from curriculum development and production and evaluation of materials to the allocation and organisation of resources and the planning of in-service education. The repertory should include methods of curriculum analysis and evaluation, technique of programmed learning, production skills for graphic and photographic materials, methods of resource organisation, storage, maintenance and retrieval, and possibly television production. But it is difficult to decide what degree of competence to expect the student to achieve in the limited time available. A reasonable minimum might be sufficient experience to be able to select appropriate methods for each situation, to be able to brief production specialists and to be able to evaluate their work. Above this level objectives are likely to be determined by the personnel and facilities of the teaching institution and the skills and talents of the individual students. The problem-oriented part of the course can be conducted on a case study basis with the students providing much of the source material. The problems on which the student's repertory of skills, technique and methods can be focussed are of three main types; problems related to curriculum development and the production and evaluation of support materials; problems related to work as an advisor with responsibility for in-service education; and problems related to planning and policy making at the school, district and regional levels.

The first of these problem areas is concerned with the development, implementation and evaluation of curricula. Different methods for analysing curricula and classifying objectives can be introduced and related to problems of evaluation, and particular care should be taken to reconcile the need for evaluation with the difficulty of finding suitable methods, so as to counteract the common tendency of educational technologists to limit their objectives to those that can be most easily evaluated. The selection of appropriate modes of teaching and learning and of appropriate resources is also best discussed on a case study basis, and procedures for curriculum development and implementation should be analysed. A minimum objective might be to enable the student to write practical and workable proposals for projects of this kind. The second problem area is concerned with the organisation of an information and advisory service and of in-service education. How can teachers be helped to identify, locate and obtain or else produce the resources they need? How can they be helped to evaluate resources? What is the role of a teacher centre? Does an educational technology adviser concentrate on visiting schools, running in-service courses or supporting curriculum development work? What kinds of in-service courses are needed, where should they be located and how should they be planned? None of these questions can be answered without special reference to local circumstances. The third problem area of resource planning and policy making is a particular concern of our centre at Sussex as it is closely related to much of our work in the university and to the Sussex Resources for Learning Scheme. It is also an area for which the American situation is particularly relevant as many of their innovatory policies and institutions have already matured and their successes and failures can be examined. A study of resource centres at the departmental, school, local and regional levels is particularly important, and the role of the "education industry" should also be considered, along with the work of national organisations such as the Schools Council, the National Council for Educational Technology, the Nuffield Foundation and the Educational Foundation for Visual Aids. It is also useful for advanced students to look at the fundamental problems of innovation in education and to formulate and discuss alternative strategies.

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An essential part of the planning procedure for courses of this kind is the listing of objectives - an integral approach to educational technology, and to illustrate this point a set of classified objectives was given (1) which relate to the type of course whose general principles were outlined. The emphasis given to the component parts of such a set of objectives will clearly vary according to specific situations but the overall characteristics of this approach seem to be generally valid.

I - 1. - b.

Since 1956, the Audio-Visual Centre of the Ecole Normale Supérieure, Saint-Cloud (France) has been running two annual courses from September to June comprising between 900 and 1,000 hours in all and requiring an attendance of about 30 hours a week.

These courses are primarily intended for in-service teachers under the age of 45 and with at least 5 years service experience. Every year there are over 700 applicants, out of whom about 60 are selected by a committee made up of representatives of various ministerial and university authorities and of the Saint-Cloud Teacher Training College. A few French and foreign fellowship holders, who must already have their master's degree (maîtrise) and, again, are selected from a great many applicants, are also admitted to the two courses. The course at Saint-Cloud is primarily designed for secondary school teachers with a degree and the agrégation, assistant university lecturers, département school inspectors and students. The course at Toulouse gives preference to lower secondary school teachers (with or without a degree) and staff from practice schools attached to teacher training colleges.

The nature and objectives of these courses have changed considerably since 1956.

They are now mainly geared to the needs of:

- future teacher trainers (educational advisers at training centres for upper secondary school teachers, staff of teacher training colleges, teaching practice supervisors);
- candidates for responsible posts in French audio-visual services: Office Français des Techniques Modernes d'Education (OFRATEME), Institut National de Recherche et de Documentation Pédagogiques (INRDP), Centres Régionaux de Documentation Pédagogique (CRDP), Centres Départementaux de Documentation Pédagogique (CDDP), universities, grandes écoles, etc;
- candidates for posts outside France (especially experts for French overseas aid schemes and international agencies such as UNESCO or ILO.

In recent years the courses have progressed beyond the rather narrow concept of audio-visual teaching and provide a training in new disciplines such as group dynamics, programmed instruction and data processing. Here again, the trend is for numerous activities to develop around the concept of educational technology.

The courses at Saint-Cloud and Toulouse have many points in common. The difference between them lies mainly in the entrance standards of the participants.

It is worthwhile describing the content of the Saint-Cloud course as many foreign training courses, both inside and outside Europe, have already been modelled upon it.

The course is based on:

- first a general training involving different audio-visual techniques;
- second, options permitting more advanced specialisation either in research or in certain modern educational techniques.

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(1) See pages 9, 10, 11 above.

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The academic year is divided into 2 semesters of more or less equal length:

* 1st semester: mid-September to end of January

  Devoted entirely to core-curriculum studies attended by all participants.

* 2nd semester: February to June

  Devoted partly to core-curriculum studies partly to group activities (with options).

CURRICULUM

A. 1st semester

Comprising four sections:

- initial core-curriculum studies;
- practical work;
- core-curriculum studies in preparation for practical work;
- presentation of audio-visual material and research by the Audio-Visual Centre.

A.1. Initial core-curriculum studies (1st week of course)

- Aim: to raise a number of didactic issues from the outset of the course.

- Topics covered:

  . General educational problems
  . The challenge of the media
  . Psychology and didactics
  . School and society
  . AV and teaching
  . The didactic implications
  . Linguistics
  . Reading of images
  . Problems of distant teaching in France and abroad
  . Major experiments in educational mass media abroad.

Each topic is closely linked with a bibliography issued to participants before the start of the course.

A.2. Practical work (8 five-day weeks)

- Aim: introduction to different techniques of production of audio-visual material.

For the purposes of this practical work, course members are divided into groups of about ten and receive successive training in the following:

. Photography: plus, laboratory work in black and white (1 week)
. Filming - 16 mm, black and white, silent film (1 week)
. Closed-circuit television (1 week)
. Sound: recordings, making tapes, mixing (1 1/2 weeks)
. Slide/tape programmes (1 1/2 weeks)
. Making transparencies for overhead projectors (1 week)
. Class recordings through closed-circuit television (1 week).

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A.3. Core-curriculum studies in preparation for this practical work

* Projection equipment
  - Technological aspects of still and cinema projection equipment
  - Handling of audio-visual equipment in common use
* Physiology of perception: sight and hearing
* Guidance on the aesthetics of the image
  - Representation of space and objects
  - Perceptual training and appreciation of works of art
  - Image components: colour, form, medium
  - Comparative history of painting and photography plus classroom applications
* Preparation for practical work in photography
  - Elementary optics applied to photography
  - Technology of the camera
  - Photographic composition and centering
  - Photography emulsions and lighting problems
* Preparation for practical work in cinematography
  - Common definitions of cinematographic vocabulary
  - What is a shooting script?
  - Technical analysis of 2 short films - one silent and one sound film
* Preparation for practical TV work
  - Principles of television
  - Use of a camera and closed-circuit television
* Preparation for practical work in "making transparencies for overhead projectors"
  - Semeiology of graphics
  - Different methods of making transparencies
  - Presentation and analysis of overhead transparencies
* Preparation for practical sound work
  - Technological aspects of the tape-recorder
  - Diction classes
  - Ear-training: learning to listen to a sound broadcast
  - Technical analysis of radio broadcasts and sound tracks
* Preparation for practical work in "making tape/slide programmes"
  - Principles of building tape/slide programmes
  - Examples and analysis of tape/slide programmes

A.4. Presentation of audio-visual products and research by the Audio-Visual Centre, by subject, in:

- Philosophy, sociology, psychology
- Teacher training
- Humanities
- Foreign languages
- History/geography
- Natural sciences
- Physics/Chemistry
- Mathematics

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B. 2nd semester

Comprising three sections:

- core-curriculum studies (1 1/2 days a week)
- group work in options (3 days a week)
- making of AV teaching material in options (2 weeks)

B.1. Core-curriculum studies (45 three-hour sessions) covering the following subjects:

. Problems of image
. Problems of sound
. AV and didactics
. AV and educational psychosociology
. Distant teaching systems
. The developing countries
. Environmental requirements for educational AV (problems relating to planning, management, documentation, architecture, etc)
. Studies concerned with sectors of AV (AV and revitalisation of French, modern mathematics, elementary education, etc.)
. Programmed learning
. Data processing

Visits to audio-visual centres are also arranged as part of these core-curriculum studies.

B.2. Group work (25-30 three-hour sessions per subject)

Participants have seven subject options:

- Teacher training by CCTV
- Comprehension of AV messages by school audiences
- Language methods
- Photography and stills
- Group dynamics
- Programmed learning
- Data processing

Every participant must enrol in at least two groups.

B.3. Making of audio-visual teaching material (2 consecutive five-day weeks)

As a continuation of the introduction to practical work of the first semester, all course members have an opportunity of making more elaborate audio-visual material in the second semester. This is done during the first half of June and is preceded by preparation work spread over the whole of the second semester. There is a choice between the following different techniques:

- Photography and overhead transparencies
- Filming (16 mm sound or silent film)
- Closed-circuit television
- Sound programme
- Tape/slide programme

Nb Course members and permanent staff hold monthly round table meetings to clarify any problems which may arise during the course and enable them to be dealt with as quickly as possible.

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Up to 1969-70 the course at Toulouse was geared to training technicians to an elementary level where they were capable of handling audio-visual teaching equipment and making simple material such as photographs, slides and tape/slide programmes; The course was thereby fulfilling the training requirement of the overseas services for staff without the baccalauréat, of mainly African and Malagasy origin.

Since 1969-70 a radical change has been made. Teachers without the baccalauréat are no longer admitted to the courses run by the Audio-Visual Centre. At Toulouse an extension of the centre's course has been introduced with a syllabus similar to that of Saint-Cloud.

In 1972-73 the breakdown of activities was as follows:

- lectures and seminars (educational psychology, mass media, sociology, semeiology, etc)	30%
- technology	10%
- practical work in making audio-visual teaching material	30%
- research work under the guidance of staff of the Audio-Visual Centre	30%
	100%

It will be noted that 60% of the activities are concerned with the acquisition of knowledge or methods either through lectures and seminars or through research work, some of which is linked with experiments conducted in schools in Toulouse.

The main difference between the course at Toulouse and that of Saint-Cloud lies in the categories of applicant selected, namely elementary or lower secondary school teachers. The training of such teachers in Toulouse by a permanent team of general staff, assisted periodically by staff from the centre, is easier at a distance than that of teachers with a secondary school certificate or the agrégation, who are necessarily assigned to Saint-Cloud in view of their specialisation.

I. - 1. - c.

The Adam Mikiewicz University of Poznan (Poland) has a Centre of New Educational Techniques where, at UNESCO's request, a training course was compiled for educational technologists, which was described at the Konstanz symposium.

The course has a two-year syllabus designed for university and training college graduates.

This course, which is again slanted towards educational technology, sets out to preserve an even balance between the theoretical principles of such technology and practical activities and between lectures, supervised group work (conversatoriums) and practical work.

No.	Subjects	Timetable		
		Lectures	Conversatoriums	Practical work
1.	Training objectives at the time of the second scientific and technical revolution	4	4	
2.	Philosophical premises of education and study, having regard to the theory of cognition	5	5	
3.	Biological and neurophysiological principles of education	4	4	
4.	Psychology of study and education	10	10	10
5.	Sociological premises of education	5	5	

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No.	Subjects	Timetable		
		Lectures	Conversatoriums	Practical work
6.	Logical principles of education	8	8	5
7.	Cybernetics and principles of communication	10	10	
8.	Psychology and organisation of the educational and study cycle	10	10	10
9.	Didactic praxeology, town-planning, school architecture and functional aesthetics of the educational infrastructure	10	5	
10.	Didactic ergonomics	5	15	
11.	Technology of rhetoric and audio-visual style in the transmission of information	5	15	10
12.	Principles of didactics	5	5	20
13.	Modern teaching methods	10		20
14.	Didactic media	10	10	20
15.	Construction, operation and utilisation of technical teaching equipment, with rudiments of electronics, stereoscopy, and holography	10	20	20
16.	Audio-visual teaching	5	5	
	a. schools radio	5	10	10
	b. educational television	5	15	15
17.	Programmed instruction			
	a. manuals	10	20	20
	b. machines	10	20	20
18.	Systems of assessment of the teaching results	10	20	20
19.	Pedagogic and economic efficacy of training techniques concerned assessment of efficacy in the light of teaching experience	10	10	30
20.	Specific methods based on general didactic technology	30	10	60
21.	Correlation of research with international documentation on its findings	10	10	
22.	Teaching practice in schools			153
23.	Preparation of theses			300
Breakdown of timetable		211	241	748

Classes	211 hours
Conversatoriums	241 "
Practical work	295 "
Teaching practice	153 "
Preparation of theses	300 "
Total	1200 hours

As there are 30 weeks in an academic year the course occupies 20 hours a week.

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The National Committee for Audio-visual Aids in Education in Great Britain now offers a diploma course in educational technology requiring full-time attendance for one academic year or its equivalent spread over a maximum of three years. The course is run on strictly practical lines, with emphasis on production of material by the students and teachers taking part.

Aims of the course:

The diploma course is designed to give an appreciation of the role of a systems approach in teaching and learning and the ability to apply it in individual situations, including the appropriate use of educational media and methods. This will include:

a. an understanding of those aspects of individual psychology and of the theories of communication and learning which are relevant to curriculum planning and the effective utilisation of educational media;

b. a thorough understanding of the potential strengths and limitations of different means of communication;

c. the ability to solve problems in resource planning and in the design of learning environments for the use of audio-visual media;

d. sufficient scientific knowledge to give an understanding of the principles on which audio-visual equipment functions and the mechanical skills required for its operation;

e. the skill to design, produce and present appropriate educational materials;

f. a knowledge of the sources of information on existing audio-visual equipment and materials and of the criteria to be applied in the appraisal of these learning aids;

g. knowledge of the sources of both published research and of information on significant new developments in educational technology.

Nature of the course:

The course consists of:

a. attendance at short non-residential courses held at the National Audio-Visual Aids Centre. Each of these courses is repeated at least once a year. Candidates for the diploma will be expected to attend:

   i. all courses in the Theoretical Basis of Educational Technology section of the programme;
   ii. at least eight of the courses in the Educational Media section of the programme;
   iii. at least two courses in the Management of Media Resources and Services section;

b. completion of the projects described below;

c. tutorials, guided reading, essays and other written work, visits.

The minimum length of the course is one academic year full-time or an equivalent period part-time and the course must be completed and all work submitted for assessment within a maximum period of three years.

The course essentially integrates learning at the centre with practical teaching experience; the latter forms a very important part of the course.

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Projects:

- Self-Instructional Learning Package

The candidate will prepare a learning package for individual or small group self-instructional use. The topic selected by the candidate for this project should be such as appropriately to include a variety of audio-visual materials combined, if necessary, with work sheets. This package should normally be used by the candidates own students, evaluated and modified where necessary, before submission for assessment.

- Media examples

The candidate will be required personally to produce and submit examples of: non-projected aids, photocopying and duplicating work, photographic slides, overhead projection transparencies, an 8 mm teaching film, a synchronised slide/tape programme, an educational television programme, and a programmed text. These materials should, as far as possible, be designed for use with the candidate's own students.

- Sources list of audio-visual materials

The candidate will prepare a card index of audio-visual materials and their sources for a specific topic not already comprehensively covered by a single published list.

At least 30 of the 200 to 300 items listed should be examined by the candidate and brief appraisals of these items should be included on the index cards.

- Study of an aspect of educational technology

The study should include some element of original thinking, experimental approach or research, and the final report should be at least 5, 000 words in length and be illustrated as appropriate with photographs, graphs or diagrams.

I. - 1. - e.

Again in Great Britain, the Plymouth Polytechnic runs a one-term intensive course leading to a diploma in educational technology. The origins, objectives and curriculum of this course, which is designed to train key members of staff, are of particular interest.

Origins and development of the course:

A broad cross-section of educationists felt that schools, colleges and industrial training establishments needed key members of staff able to plan and control the introduction of new techniques and facilities in an educationally and economically viable manner and to encourage their colleagues to make better use of the existing equipment.

Plymouth Polytechnic and Exeter University Institute of Education were charged with the task of developing an appropriate course.

Members and officers of the National Council of Educational Technology have made valuable suggestions in the development of the curriculum. These and Plymouth's experience have enabled the objectives to be clarified, and a programme has been devised which contains all the elements required to achieve them. At the same time, the course is sufficiently flexible to make it equally useful to primary and secondary teachers, further and higher education lecturers, industrial training officers and educational administrators.

Objectives of the course:

1. To enable course members to appreciate the implications of modern educational thought and the need to improve the efficiency of educational and training processes.

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2. To modify attitudes, where necessary, of willingness to work as part of a team to achieve an educational goal.

3. To provide the knowledge and skills necessary to apply a systems approach to curriculum development.

4. To develop the ability and skills necessary to select, develop, produce and evaluate educational materials and methods appropriate to any given need.

5. To qualify those who complete the course to assist in the training of their colleagues in the use of modern methods and media.

Curriculum plan

The curriculum is planned to attain the above objectives through the application of a systems approach to the course itself. Two main strands run throughout the course and are developed in parallel.

1. The study of the learning process with special reference to:

   a. sociological background and psychology of the learner;
   b. learning environment;
   c. curriculum structure;
   d. efficiency of organisation, methods and media.

2. Basic training in:

   a. application of the systems approach to educational organisation and curriculum development;
   b. use and care of modern teaching and learning equipment, including all forms of audio-visual aid;
   c. production, use and evaluation of modern teaching materials, including those for use with all forms of audio-visual aid and programmed texts;
   d. working in teams to achieve given educational objectives, eg by the planning, preparation and production of an educational television programme.

The practical arrangements for achieving the above targets are illustrated by accompanying diagrams.

These five examples of advanced courses of study for specialists give an idea of the developments we may expect in Europe in the next few years. Universities and other qualified bodies are planning courses of this kind to meet the demand in a new sector in which amateurism must gradually give way to a new type of professional.

I - 2. In-depth training of specialists for particular geographical sectors

There are few instances of this type of training in Europe. Generally speaking, specialists in audio-visual media or educational technology are sent into the field on completion of their studies and adapt their knowledge to particular geographical sectors as best they can.

However, an attempt is made during their training to relate their studies to these sectors, in which the developing countries take priority, since conditions for the production and use of new technological advances are very different in such countries.

I - 2. - a.

In France, for example, efforts have been made in this direction, but, for the most part, they are not institutionalised.

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Over a period of about ten years, the course run by the Audio-Visual Centre of the Ecole Normale Supérieure of Saint-Cloud at Toulouse catered for French, African or Asian teachers who, on completion of the one-year course, were all to return to developing countries to run audio-visual centres, production or training services or technical schemes in the audio-visual sphere.

In addition to basic studies on teaching and audio-visual techniques, participants received diversified training.

First, although the problems of schools in the developing countries were studied, the curriculum also included many sessions on the use of audio-visual techniques in fields where adults as well as children had to be reached by new methods: health education, combating of illiteracy, community development, etc.

Secondly, the practical production work was done with suitable strong, economical and tropicalised materials of the type which participants were likely to find in their posts and which are used in the intermediate stages of technology.

This specialised course at Toulouse was discontinued four years ago when the French Ministries of Education and Co-operation decided, in agreement with the main African States concerned, that it was preferable for the specialised part of the training to be given locally after a more general training supplied by the present courses at Saint-Cloud and Toulouse.

However, personnel taking part in major experiments in the mass use of audio-visual techniques in Africa, such as those in Niger, Ivory Coast and Mali, received specialist audio-visual training at the Institut Pédagogique National until 1970 and at the OFRATEME thereafter as well as, of course, at the Saint-Cloud Audio-Visual Centre. In addition, after specialist French and African staff have done the centre's one-year training in France, they assist in the training of Africans locally, for example at Bouaké on the Ivory Coast.

Mention should also be made of the course recently held at OFRATEME for teachers sent from Mali with the object of improving teaching in their country by the use of multi-media systems.

The Association Universitaire pour le dévelopement de l'enseignement et de la culture en Afrique et a Madagascar (AUDECAM), with the aid of the Groupe d'Action Technique (GAP) of the Secretariat a la Co-opération, runs training courses for African or Malagasy nationals intending to take up professions in the audio-visual field. Most of these courses are linked with the launching of major projects in Africa, one of the most recent of these being the Institut de Technologie at Mostaganem (Algeria).

Still in France, courses are held at the ORTF (Vocational Training Department) for technicians already employed in their own countries who wish to undergo further training for one or two years. Applications are submitted by the authorities of the countries of origin. Selection is based on a competitive examination held in August-September (baccalauréat standard). The radio or television broadcasting services of the various countries supply details of the examination.

The course itself is held in France and comprises 2 months' actual training, 6 months' training on the job and 1 or 2 years' employment in a specific post in France.

I - 2. - b.

In Great Britain, the Overseas Visual Aids Centre (OVAC) and the Centre for Television Overseas (CETO) used to organise long courses to train specialists in audio-visual techniques for the developing countries; they subsequently merged to become the Centre for Educational Development Overseas (CEDO).

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"The Centre for Educational Development Overseas is pledged to promote by all means possible the development overseas of education. It is hoped that its work will foster the growth of manpower trained to meet the needs and priorities of developing countries overseas. Activities cover adult and informal education, as well as the school level.

Training is fundamental to this work and, whilst different situations have their own training requirements - which CEDO tries to identify and meet - experience has shown that there is a continuing need for a number of training courses to be held on a regular basis in London.

These fall naturally into the specialised areas of audio-visual media, educational broadcasting (both radio and television) and curriculum development; often with interdisciplinary study being arranged. CEDO staff give this training, calling, when appropriate, on the expertise of individuals and organisations within the United Kingdom. Specialist courses and attachments are arranged for individuals from time to time.

Overseas courses, related, as far as possible, to the needs of on-going projects and operations, are conducted by CEDO staff, as a result of special requests.

The language of instruction of the UK courses is English and trainees must be reasonably proficient in this language. Overseas courses may be conducted through interpreters by special arrangements."

CEDO offers several types of long courses.

Some, lasting 15 weeks, are designed to provide a fairly general training in audio-visual techniques for training staff.

"They aim to train people to teach others to use audio-visual aids intelligently; to enable them to assist in the small-scale production of aids for specialised or local purposes, and to give advice on the suitability of equipment and sources and costs of aids generally. The course is designed primarily to assist headmasters and inspectors of schools, staff of agricultural health and community development training centres and staff of audio-visual centres. There are sessions on the contribution which radio and television can make in the spheres of formal and informal education, but the emphasis throughout the course is on practical aspects of the uses of audio-visual media in relation to the needs of the country to which the students will return.

The courses concentrate on training students to be:

- familiar with the purposes and ways in which audio-visual media may be applied in teaching (in its widest sense);
- conversant with the principles of curriculum planning and ways of providing supporting teaching and learning resources materials;
- proficient in quick methods of drawing, enlarging, lettering, stencilling and duplicating and in the making of a wide range of non-projected aids such as flannelgraphs, wall charts, models and simple teaching apparatus;
- proficient in the operation and care of projectors and tape recorders and in the production of transparencies, filmstrips, concept films and tapes;
- capable of teaching others how to make teaching and learning aids and how to operate the more sophisticated equipment;
- familiar with sources, costs and types of audio-visual equipment, suitable for difficult climatic conditions.

Arrangements are made for students to visit schools, centres and organisations in the UK concerned with specific aspects of audio-visual media and for talks on the modern developments in curriculum planning, and on the place of radio and television in formal and informal education."

CEDO also runs long specialised courses in radio and television.

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The core of the Broadcasting Division's work is to help overseas countries to establish and run their own services, for which training is a prime requirement. An educational broadcasting service requires staff trained in studio techniques of production and with an awareness and a maintenance of a high standard of educational values in scripting and presentation. A service also requires an integrated system to advise the producers on series required, to train the teachers to use the service, to provide teachers or group leaders' guides, to organise feedback. Production technique is the first aim of the courses, but students have also to become acquainted with requirements of utilisation. Most trainees are, themselves, experienced teachers, and this fact governs the nature of the training given. Further needs have been identified for specialist training at the administrative level, in classroom utilisation, for graphic assistants and for the liaison staff who will be largely responsible for the co-ordination of efforts into an efficient team operation."

The radio courses last 13 weeks.

"These courses provide practical training in the use of studio equipment for the production of programmes of various types, such as interview, feature and drama, the writing of scripts and the production of support material. The courses show the need for, and practise, an integrated approach for the successful use of radio in educational development. It is hoped that participants complete the courses with an understanding of and facility for the planning, preparation and production of radio programmes of a sound educational nature, together with a grasp of the planning procedures necessary to integrate such programmes within the context of educational practice, the production of support material and the organisation of utilisation services.

There are sessions on other media, especially audio-visual and on curriculum development. Trainees are given the opportunity to visit schools and other educational establishments to observe the media in action in the United Kingdom.

Where sufficient demand exists, special courses are run which, whilst giving practical training, lay a special emphasis on a particular subject discipline or technique. Such special courses could cover the field of radio in the use of language teaching or science subjects in schools and in community development, agricultural extension or public health projects."

The television courses last 15 weeks.

"These courses concentrate on the effective application of ETV to educational development within the context of CEDO's activities. They aim at stressing the integration of a specialism within national educational aims and methods. The end product must be the integrated professional.

The courses are essentially practical. After familiarisation with equipment, a study of the roles played by the different members of the studio team and groundwork in the basic grammar of television production techniques, trainees produce and direct first a five-minute programme on one teaching point, followed by a full-length programme. Trainees carry out their own research, scripting and basic graphics work. At the same time they assist in other programmes as members of the studio team: as cameraman, floor manager, vision mixer or presenter. Trainees also take part in seminars and discussions, and visits and attachments to educational and television organisations are arranged. Trainees are given opportunities to work within their own subject areas and individual work programmes can be arranged in special areas such as graphic design for ETV. Time is given to consideration of other media, and to work in curriculum development."

Lastly, 6, 3 or 16 week courses are held for educationalists and specialists in radio and television with several years experience behind them.

"This type of course deals with two main problem areas - organisation and administration, and current production techniques. Main activities are case studies of ETV possibilities and problems; organisation and management studies; utilisation, research and evaluation in developing situations; ETV and educational development integration; current production techniques and technical information; preparation and distribution of support material, problems and solutions."

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Participants attending such courses usually intend to become training instructors on their return in their own countries.

I - 3. Training of specialised researchers

Specialist training for research into the mass media and their educational applications does not seem to exist in Europe.

Researchers have an increasingly important part to play in audio-visual based systems and educational technology and are responsible, in particular, for ensuring constant evaluation and feedback. They are usually trained as researchers in psychology and sociology, with special emphasis on education. They then complete their training by taking courses on communication techniques, educational communication in particular.

However, specialised researchers also come from some of the training backgrounds described in section I - 1. For example, as a result of the options open to them and work with the Audio-Visual Centre's teaching research teams, some course members receive a start in specialisation leading to research more specifically directed towards the use of new techniques in particular subjects such as linguistics and modern languages, teacher training, history, mathematics, etc.

A great deal still needs to be done in this field. For if the basic training of educational researchers is to be the same whatever the sectors of such research, it is essential that appropriate training colleges should provide a suitable supplementary course at third-year university level as soon as possible. The universities of London, Birmingham and Sussex seem to be working along these lines.

I - 4. Training of subject specialists

There are also few long training courses in Europe for specialists in the production and/or use of new techniques in this one discipline. Usually, after a long general training, the teachers concerned specialise while in post or during short courses.

One notable exception is the annual course run by the Centre de Recherches et d'Etudes pour la Diffusion du Français (CREDIF) of the Ecole Normale Supérieure, Saint-Cloud, which offers specialised training, lasting one academic year, in the production and use of audio-visual methods for the teaching of French abroad.

Originally this training was incorporated in the course run by the Audio-Visual Centre (see pages 19-22). The CREDIF students joined in the basic course and the practical work but worked in teams with CREDIF researchers. For the last 3 years these students have still been taking part in some courses and practical work at the Audio-Visual Centre but most of their time is now spent on a specially devised curriculum, which is outlined below.

"1st term (Oct - Dec): Methodology course.

1. Methods of situation analysis - language and context.

2. Functions of the image in its relation to speech in a given situation.

3. The teaching unit: content and purpose.

4. Linguistic principles of situation analysis (methods demonstrations).

5. Grammatical structures: grammatical use and transposition.

6. Conveyance of meaning in audio-visual methods.

2nd and 3rd terms (Jan - June):

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- practical technological work

.. introduction to useful techniques in the making of teaching materials;
.. construction of models.

5 series are offered: photography
reprography (transparencies)
videotapes
closed-circuit television
filming.

- practice seminars

These cover 5 subjects, each involving work spread over two weeks (study of material, analysis of methods, production of material, visits to institutions, etc).

.. Teaching of French in elementary schools

- French as mother tongue: study of textbooks
  contracts with INRDP
- French as a foreign language in France: visits to beginners' classes
- French as a foreign language in other countries:
  methods analysis: "Frère Jacques" (BELC)
  "Bonjour Line" (CREDIF)
  "Pierre et Seydou" (BELC)
  "En avant" (Nuffield Foundation).
- Psychological problems concerned with learning a foreign language at this level: perception, difficulties, etc.
- Study of specific situations (Great Britain, Lebanon).

.. Teaching of French in secondary schools

- French as mother tongue: courants de rénovation (INRDP)
- French as a foreign language:
  methods analysis: "La France en direct" (Capelle)
  "6e et 5e vivantes" (BELC)
  "De vive voix" (CREDIF).
- Psychological problems concerned with learning a language at this level: assessment of knowledge, evaluation, etc.

.. Teaching French to adults

- Teaching of everyday language:
  methods analysis ("Le français et la vie", etc)
- Teaching of scientific and technical language
  methods analysis: "Le français scientifique et technique" (Masselin)
  "Les dossiers de tronc commun" (CREDIF)
  "Le français médical", etc.
- Approach to literary texts
- Teaching by television:
  "Les français chez vous"
  "En France avec Jean et Hélène"
  "En français"
  RTS programmes
  "En France comme si vous y étiez".

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- Promotion of literacy:
  visits to social welfare classes
  analysis of the "Vivre en France" method
  contacts with the teaching research group of the Secrétariat d'Etat à la coopération, etc.

.. New approaches to modern language teaching in France

- Experiments in early teaching (infant schools)

- Textbooks and methods for secondary schools ("Passport to English", "Que t'al Carmen", etc.)

- Linguistic retraining at university level.

.. Teacher training

- Study of course curricula

- Production of training material.

  For these practice seminars, outside lecturers are brought in (eg authors of the methods analysed) and assessment aids are devised (eg methods grid).

- Research seminars (with options)
  with the assistance of the teaching centres and research laboratories of the Ecole Normale Supérieure, Saint-Cloud:

  .. programmed instruction
  .. data processing
  .. group dynamics
  .. picture semeiology
  .. analysis of audio-visual based educational systems.

  Students have the choice of one seminar in the above list. They also continue, 3 half-days a week, with the university work they embarked upon during the first term, and with practical work in the teaching practice classes, 1 half-day a week."

It may be noted that particular importance is attached to modern media (from audio-visual aids to data processing) and the study of audio-visual methods of modern language teaching.

I - 5. Training of specialists in production and direction

There is a growing need to train people who are properly specialised in the production and direction of audio-visual media.

In some cases, these will be mainly teachers who in the case of closed-circuit television, for example, are to spend most of their time on production work in an educational establishment.

Or, more frequently, it is necessary to give training in the production techniques of filming, radio, television, etc, for teachers who will work afterwards in production units.

In these two fields, few European countries seem to offer long comprehensive training courses in production for educational purposes. The personnel concerned therefore have to take short courses of the kind described in Section III.

However, mention should again be made of long courses such as those provided by CEDO in Great Britain which are essentially geared to production and direction.

The Television Research and Training Unit of Goldsmiths College, University of London, provides an instance of a one-term course on "Television techniques and their applications to education".

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"The Television Research and Training Unit has developed multi-purpose television units capable of a very wide range of teaching applications, and designed to suit the resources of colleges, schools, university departments and training centres where space and manpower are limited. All equipment is portable, in line with the increasing emphasis on the use of closed-circuit television outside as well as inside a conventional "studio" setting. The courses provide intensive experience in the preparation and use of television material, including video taped stimulus and exposition programmes, televised classroom observation for teacher training, craft demonstrations and work study, and children's project work. Experience is provided in programme direction in the traditional pattern, as well as in the "mini-studio" (requiring one operator only) and the "micro studio" (in which no-one besides a presenter is required). Course assignments include location visits to craft workshops and to neighbouring schools. Course members are enabled to pursue practical studies in fields of their special interests. Guidance on costing and installations is given.

Each course consists of three parts. The first week is a general introduction suitable both for those without previous experience, and as revision, for those with previous experience. Thereafter the main course is divided into two sections of five weeks each. Parts I and II of the main course may, by special arrangement, be taken in succeeding terms in certain cases where, for example, the course member wishes to return to his own institution in order to get equipment ordered or installed and then to resume the main course in the second half of the term following.

Training attachments are also available for technician members of closed-circuit television units. The technician attends the preliminary course (usually in company with the teacher/lecturer responsible for his unit, and comes on an attachment, part- or full-time, for a maximum of five weeks, on dates by arrangement)."

The majority of long courses in production are provided not by university bodies but, especially in the field of radio/television production, by the major specialist organisations such as the BBC and the ORTF. Trainees are either teachers wanting to become producers or directors or radio and television professionals wanting to specialise in educational production.

The programmes of CEDO courses for educators from developing countries described earlier on, give a good idea of this type of training, which should be organised in a more systematic way for educators in technically advanced countries.

I - 6. Training of specialised technicians

The production of audio-visual media and their use in educational establishments require technicians who, after a general technical training (mechanics, optics, electronics, etc), must be turned into specialists in a field where production methods are often different, with lighter adapted equipment, and where methods of utilisation demand a certain allround competence from technical staff.

Indeed the need is for allround technicians who can operate and maintain many different types of equipment such as still and cine projectors, tape recorders, etc.

They are also sometimes called upon to help in the production of simple material (transparencies, pictures, models).

There is also a need for more highly qualified technicians specialising either in more complex hardware such as language laboratories and closed-circuit television, which require a good full-time maintenance staff, or in more sophisticated production work: photographs, data sheets, radio and television broadcasts.

Provision must therefore be made for basic courses and also for specialist courses at a higher level.

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The following extracts from an article published in "Visual Education" in March 1970 sum up the problem and provide an example of this kind of two-level training as supp[illegible]eworth Technical College in Great Britain.

"It was decided to devise a scheme for audio-visual technicians in two parts. Part I to cater for the omnicompetent technician and Part II for the various specialist technicians. From this it followed that the Part I scheme would have to fulfil two objectives - to provide a complete scheme for the omnicompetent technician, while at the same time laying a sound foundation for the Part II course for technicians who wished to take their studies further by specialising in a particular branch of audio-visual technology.

Audio-visual technician's certificate - Part I

i. Syllabus. The Part I syllabus which is based on a course of study of a minimum duration of four hundred and eighty hours, is divided into the following sections:

a. Audio-visual technology, covering optical projection, photography, reprography, audio-equipment, screens, classroom arrangements, organisation of audio-visual services and the preparation of charts, diagrams and models. A section is also included on "educational principles" to ensure that technicians are made aware of the educational possibilities of the various media and techniques and the theory underlying their use.

b. Related science.

c. Workshop practice.

The syllabus has been designed to enable technicians to gain a knowledge of the principles underlying the construction and use of the types of equipment in classroom and lecture theatre in order that they may appreciate the relative merits of the different equipment and methods available to achieve the desired results. For this reason, the scheme emphasises that the technician should be made aware of the comparative costs involved, not only in the purchase and installation of equipment, but also in the running costs and the time involved.

ii. Examinations. The examination for the Part I Certificate comprises two written papers and a portion concerned with the assessment of a candidate's practical work. To keep in line with modern examination techniques, the first written paper has been designed as an objective test. This paper enables questions to be set covering the whole syllabus and also makes it possible to test the abilities which it is thought desirable for an audio-visual technician to possess. The second written paper is the traditional essay-type with candidates answering eight out of twelve questions. This second paper enables a candidate to write at some length on topics which particularly interest him. As far as practical work is concerned, the course covers the wide range of skills an audio-visual technician may be asked to perform. Courses are based firmly on practical techniques and the student is expected to reach an adequate standard of competence in all of them. It is not intended, however, that a student should acquire a very high degree of skill in any one technique during the course. Any such specialisation is the responsibility of the individual employer who should make time and facilities available for it. In view of the importance attached to practical work, this is assessed throughout the course by a system of phased assessment which has the following objectives:

a. to ensure that the practical work carried out throughout the course contributes to the overall assessment on which a certificate is, or is not, awarded;

b. to give teachers a greater opportunity to participate in the assessment of their own students;

c. to provide a broad basis for assessment covering all aspects of practical work.

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Such a system enables a more comprehensive assessment of a candidate's practical ability to be made than is possible with a practical test of restricted duration. The institute has prepared a grid showing the various areas of activity that all candidates must cover in their practical work throughout the course, but colleges are free to devise their own tasks to assess each area of activity, although it is emphasised that each task should not be in the form of an end test, to be taken under examination conditions at the completion of each of the areas of activity. In many cases methods other than end tests may be more appropriate for the evaluation of a student's work and colleges are allowed complete discretion in devising the actual method of assessment to be used. The institute appoints an assessor to visit colleges and at the end of the course, each candidate is awarded a grade for his practical work agreed jointly by the college and the assessor.

iii. External candidates. The scheme was designed not only for those starting a career as an audio-visual technician, but also for technicians, already employed in this work, who wished to obtain a recognised qualification. If such technicians are unable to attend a technical college course, it is possible for them to enter the examination as external candidates in view of their experience in the field. Also, it was appreciated that many candidates who had qualified in an area related to audio-visual technology might wish to take the examination for the Audio-Visual Technician s Certificate. In such cases, colleges are allowed to exempt students from that part of the course which covers their special field. Thus a student who has obtained the Photographic Technician's Certificate might be able to secure exemption from that part of the course dealing with photography.

Audio-visual Technician's Certificate - Part II

In line with the recommendation of the institute's Exploratory Committee, a Part II scheme is now being prepared and it is hoped to publish this in the near future. The Part II scheme is intended for technicians who wish to specialise in a particular field and the syllabus will contain a compulsory section on particular general audio-visual techniques together with optional sections on closed-circuit television, design and graphics, advanced still photography and cine photography."

Plymouth Polytechnic College, which provides a 4-year training for television engineers, also has a 3-year course for technicians specialising in closed-circuit television and for specialists in graphic design for television.

In France, an audio-visual technician's diploma has been created: the career is described in the following terms in official prospectuses:

"The BEP for audio-visual technicians is a professional qualification. The purpose of the course is to train fully-trained, allround personnel, particularly qualified to:

- understand the operation and assess the performance of equipment used in audio-visual teaching;
- install such equipment to suit a particular teaching situation;
- operate it in accordance with instructions issued for the use or making of teaching materials;
- effect minor running repairs;
- keep up with developments in educational technology.

On completion of their studies, holders of the BEP should be able to:

1. Prepare the premises, select equipment and put it in operation, store and classify material, for the purposes of any audio-visual aid such as:

   - slides of different simple formats or stereoscopic slides
   - large format transparencies (overhead projector)
   - episcope material
   - films of any size, running at different speeds, silent or sound (optical magnetic sound), double-track programmes
   - records
   - sound and videotapes
   - radio and television
   - synchronised slide/tape presentations;

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2. Build sound-tracks.

3. Install simple forms of lighting.

4. Prepare simple audio-visual material (based on given facts, resources or circumstances and on the instructions of a teacher, departmental head or technician) such as:

   - slides
   - overhead transparencies
   - magnetic tapes (sound and image)
   - slide-tape presentations.

5. Carry out the maintenance of audio-visual equipment and teaching machines, eg: change a lamp, fuse, lens, heat filter, mirror, printed circuit card, etc; they should be aware of the importance of optimum adjustments but should also know the limits within which they can intervene.

6. Understand and explain technical instructions and operate any new piece of equipment within the special field of educational technology.

7. Recognise the characteristics and potential of audio-visual equipment in order to use it correctly and with maximum efficiency (importance of standardisation to ensure matching equipment, knowledge of specifications for screen size, luminance and contrast and of sound levels required for comfortable listening and viewing). They should also be pleasant to deal with, willing to arrange exchanges between establishments and should be ready to assist lecturers.

The diploma is taken in technical colleges at the end of a two-year course based on a 40-hour week comprising 22 hours of vocational training, 13 hours of general education and 5 hours of physical education.

I - 7. Training of administrative specialists in the audio-visual sphere

Training is needed to provide administrators and executives competent in management, production and dissemination as applied to educational technology. The functions and abilities required of such administrators are very different from those of ordinary administrators in teaching establishments or national and regional education departments.

Up to now, no specific full-length training seems to have been attempted in Europe. At the very most there are occasional short courses for the guidance and updating of administrators who already have responsibilities in this field.

An example of these is the course, which focussed on certain themes, held by the Munich Institut für Film und Bild in 1972 for heads of regional audio-visual services, the programme of which is given below:

"Monday

9.00	Opening reception Introduction to the course Introduction to the institute
14.00	Making of copies (slides and films)

Tuesday

am	New trends in educational technology
pm	Production of audio-visual media at the institute

Wednesday

8.30	Short films for object lessons in primary schools
10.45	Production planning in cinematographic training
14.00	Teaching films for vocational training
16.00	Planning in the educational sciences Films for the guidance of parents

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Thursday	
8.30	Submission of questions
8.45	Technical resources for the initial and in-service training of teachers
11.30	Final discussion on the institute s activities
Friday	
8.30	Documentation in centres
10.45	The function of documentation centres in the context of subsequent educational developments
14.00	Final discussion Close."

At the CENIDE in Madrid, two-week courses are held for people with management responsibilities in educational technology. The programme is generally as follows:

"1st week

Monday	Introduction Application of computers to teaching
Tuesday	Analysis of motivations, needs and opportunities for the use of audio-visual media Classification of audio-visual media, principles and limitations
Wednesday	Criteria for the selection of audio-visual media Administration of audio-visual media at provincial level
Thursday	Audio-visual media and adult education The place of television in education
Friday	Utilisation of audio-visual media and programmed instruction Application of computers to teaching (conclusion)

2nd week

Monday	Tour of the CENIDE
Tuesday	Policy for audio-visual media Audio-visual media in secondary education
Wednesday	Audio-visual media and primary education
Thursday	Round table."

The Educational Foundation for Visual Aids in Great Britain holds even shorter courses (2 days) for the updating of senior staff responsible for local and regional audio-visual services.

"This conference will provide an opportunity for administrators and inspectors from local education authorities to discuss ways of organising audio-visual services. It is especially hoped that authorities who have not appointed an audio-visual adviser will be assisted by this meeting. The topics discussed by visiting speakers will include the evaluation and purchase of audio-visual equipment and materials; the maintenance and repair of equipment; photographic, reprographic and other services; audio-visual services in the teachers' centre, and the provision of in-service training. Case studies will be included."

It is to be hoped that brief courses of this kind are the prelude to proper full-length further training and refresher courses for administrators. There is a great need for them bearing in mind, for example, the experience required for the management of a schools television station, a film production unit or a large resource centre.

- II -

TRAINING OF FUTURE TEACHERS

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Every year, throughout Europe, tens of thousands of young people enter training institutes (ecoles normales, training colleges, pädagogische hochschulen, universities, etc) to receive several years of education in one or more disciplines as well as teacher training. This period of their lives, which is spent entirely in preparation for their careers, is a particularly advantageous time to initiate them in the use of new educational techniques both at the theoretical and practical levels. One might therefore expect all training establishments to offer courses on these lines.

According to the survey we carried out, it appears that virtually every institute in every country provides an introduction to modern teachnig techniques, comprising for the most part between 50% and 75% practical work. However, on closer examination of the replies, extreme differences emerge: in one country institutes may indeed set aside several periods a week for audio-visual methods, while in others future teachers have only a few sessions on the handling of equipment during the whole period of their training. Sometimes "audio-visual sessions" are even optional and attended only by volunteers. In some cases training in this field is spread over one or more years, in others it is given in specific periods.

A few examples will perhaps help to clarify the situation by explaining what is done in some countries.

II - 1. General training in the use of audio-visual media

By this is meant a general introduction to new techniques which is not confined to audio-visual techniques in the limited sense of the term and does not necessarily cover their actual utilisation in relation to particular disciplines.

II - 1. - a. In training institutes

From the replies received concerning Great Britain, where all the institutes are independent, it is difficult to establish a valid general picture, but the "average" situation seems to tally with the following reply from the EFVA:

"There is no real normal course common to all colleges but most run general courses as outlined in the following paragraph for all students in their first year:

a. general introduction to the theory of communication;
b. foundation course in the "Educational implications of the use of audio and visual aids to learning in the classroom";
c. the techniques of classroom display;
d. reprographics - mainly use of spirit and ink duplicators, OHP materials and photocopying.

Many colleges offer additional "Options" for groups of first year students, such as:

e. photography - still and cine;
f. tape recording;
g. simple TV production;
h. further studies in film, radio, and TV broadcasting;
i. 16 mm projectionists course.

Several colleges offer a second year "Choice" option course which allows for a much greater study in depth of a number of selected topics, some additional theory and the production of a multi-media package, an exercise in micro-teaching and some other aspect of aids to learning; in some cases this course is continued into the third year and could be examinable under the 9c group. Also into this category come a number of special courses on film, TV etc run in conjunction with English drama departments.

Colleges offering educational technology as a main usually have a very strong element of practical work as well as a considerable amount of examinable theory; there is usually a link with another department, such as art, with staff potential for a fairly high degree of professional skill.

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Bede College (Durham) is quoted as an example of a training college which organises one-term courses for its students.

It provides an opportunity for the systematic study of the principles underlying the use of audio-visual aids in the classroom with particular reference to psychological and sociological aspects. During the course, the skills necessary to make maximum use of audio-visual aids will be developed; practical work and visits will give further acquaintance with recent advances in the field of audio-visual aids, discrimination and a critical appraisal of aural and visual aids will be encouraged.

The course will provide training in the basic techniques of educational television production and students will be responsible for the presentation of brief programmes on closed-circuit television. Further practical work will be undertaken with 16 mm and 8 mm film and there will be an opportunity for making single-concept films for 8 mm cassette projectors. Tape-recorders will be used to provide commentaries for films, filmstrips and slides made by students; a study will also be made of the use of tape-recorders in other classroom applications. School broadcasting, both radio and television, will receive special attention and there will be reviews of educational films and filmstrips. The use of the flannelgraph and wallcharts, lettering and display techniques will be included in the course and there will be opportunities for handling a wide range of projection equipment. An introduction to programmed instruction will also be provided and students will prepare simple programmes. A guide to points to watch in selecting material and equipment will be given during the course."

As we can see, all these courses include specialised teacher training, methodological training as well as the handling of equipment, practical work and the study of audio-visual material.

Belgium provides another example.

"As regards the training of future teachers, the main point to mention is the introduction in all fifteen of the country's écoles normales moyennes of a basic audio-visual course for future teachers of lower secondary school forms in the 12-15 age-group.

This is a one-year course composed of 3 hours a week of classes given by staff who have previously taken specialised courses. The syllabus is in two stages - first, a technical stage which from time to time also touches on certain aspects of audio-visual theory (problems of receptivity, perception, motivation, memorisation, etc).

This theoretical approach, which is always linked with practical situations, may be continued into the second stage of the syllabus which is essentially didactic and designed to train student teachers to use equipment in the teaching of different subjects: examples of utilisation, outlines of lessons followed by collective criticism, etc.

During this second stage, students go beyond the stage of simply utilising apparatus and practise creative work making audio-visual material such as programmes, models, photographs, recordings, etc.

They are also trained in the critical assessment of audio-visual materials - records, filmstrips, films, schools radio and television broadcasts, etc. They receive bibliographical guidance."

In Sweden, the National Board of Education has prepared a 15-hour minimum course on new technical media to be developed in training colleges. This is outlined below:

"Technical teaching media

The object of training in technical teaching media is:

- to provide a survey of the various technical teaching media available;
- to instruct in the fundamentals of how the most common technical teaching media function;
- to develop proficiency in the handling and care of the most common technical teaching media;
- to impart knowledge and practical attainments in the manufacture of AV material.

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Course

General

Orientation in the furnishing and equipment of teaching premises, the storage of teaching media, the Copyright Act and its application at school.

Sound apparatus

Some knowledge of the fundamentals concerning the functioning of the following types of apparatus and training in their handling: radio, tape-recorder, gramophones.

Visual apparatus

Some knowledge of the fundamentals of how the following forms of apparatus function and training in their handling: overhead projector, episcope, film projectors, miniature slide projectors.

TV apparatus

Some knowledge concerning central aerial systems and distribution systems and how TV receivers, TV tape recorders and TV cameras function. Training in their handling.

Other teaching media

Some knowledge of the fundamentals of how the following teaching media function, and proficiency in their use for production of teaching materials: blackboards, magnetic boards etc, stencilling, spirit duplication, high-speed printing, copying-work camera.

Directives and advice

The general part of the course and the theoretical elements concerning the fundamentals of how various forms of apparatus function are dealt with in introductory lectures and in conjunction with the programmed exercises in the manual handling of the apparatus. This part of the teaching should not be too extensive but be viewed as a general orientation in techniques.

The time for exercises does not allow for such a long period of training so that all student teachers may be expected to learn to master all types of apparatus. It is important, therefore, that proficiency be consolidated and further developed during the subsequent training, especially during different forms of exercise and practical training. It is an advantage if the student teachers can be given the opportunity of learning to handle different makes of the various types of apparatus.

The development in technical teaching media is extremely rapid, so that there may be reason to adapt the course according to the changes which may occur.

Organisation and forms of activity

The training in the handling of technical teaching media should be given in the form of a course concentrated in time, so that the fifteen hours of training are experienced as a whole by the candidates.

For the training of future teachers the course should take place during the five to six first weeks of the higher training college term. Otherwise, the student teachers will not be able to take a concentrated course. More important than this, however, is that they would lack the necessary proficiency during a large part of the practical training periods.

In order that future teacher students may take the course in technical teaching media in a concentrated form and before they start practical exercises, the Department of Technical Teaching Media should be available entirely for future teacher training during the first five to six weeks of each term. It may also be necessary that two to three groups exercise simultaneously at the different stations. The class teachers can then have the remaining time allotted to them and should not need to duplicate the exercises.

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The course can be introduced by orientational lectures on the subjects indicated in the table below. By using audio-visual media the lectures can be given to large groups of students (48-96).

Exercises in the manual handling of apparatus are done with the aid of self-instructive material in groups of at least eight students.

Organisation of training in technical teaching media

Demonstration lectures

(In groups of 48-96 students)

Orientation on the scope of the course	
Classroom equipment	
Blackboards, magnetic boards, etc	
Storage, distribution, copyright	
Duplication, high-speed printing, tape recorders	
Different types of projectors	3 h

Exercises in use of apparatus

(Groups of at least 8 students)

Tape recorders, record players, radio	2 h
TV tape recorders, TV receivers, TV cameras	2 h
Film projectors, film splicing	2 h
Minature slide projectors, episcope, overhead projector	2 h
Duplication, high-speed printing, flannel boards	2 h
Copying work camera, recapitulation, check of proficiency	2 h
Total	15 h

In conjunction with the exercises in the use of apparatus certain material is also manufactured. The Department of Technical Teaching Media should have sufficient equipment and personnel to allow the students to use the department for producing stencils, material for overhead projectors, flannels, sound recordings, colour slides, etc. They should also have the means of listening to sound recordings, gramophone records, viewing films, school TV programmes, colour slides, etc, when they have training lessons or otherwise desire to examine material from the methodological point of view.

Increasing emphasis is placed on methods of self-instruction.

Self-instructing material for technical exercises in audio-visual media for student teachers is at present being prepared by the National Board of Education. The effort is being made to produce a simple instructional material with the main emphasis on auditive reception. The material is here described.

The teaching of audio-visual teaching media at higher training colleges is planned to comprise 2-3 hours of lectures to large groups (48-96 students). This introduction to the subject will deal summarily with visual and auditive teaching media, lecture room equipment, blackboards and magnetic boards, care of materials, storage, distribution, duplication methods, copyright, the activities of the National and County Centres for Educational Media and of the Audio-Visual Centres for Educational Media. The remaining time up to the 15 hours available will be allotted to practical exercises in purely technical handling of the apparatus.

The methodological aspects of how teaching media are integrated in the teaching will be given in the general methodological teaching. Self-instructing material for technical exercises for student teachers is at present being prepared by the National Board of Education, Section UA3:1. The main principle in the drawing up of these instructions is that the student, via a sound recording - on tape in a cartridge or on standard tape - is successively instructed in what shall be done during each part of the exercise. As visual support for and reference to the location of a particular control on the film projector, for example, the student has a simple illustrated booklet.

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The tape recorder is stopped by a signal, the operation is performed and, when completed, the student restarts the tape recorder, which delivers a new task, possibly with instruction to turn to a new illustration.

The pace is determined by the pupil, who, if necessary, can also play back for repetition.

The technical learning of the 16 mm film projector has been preceded by an instructional film - construction of the film projector - in order to give a background to what happens in a projector at different moments.

The various operations in the subsequent instruction comprise prior testing, insertion of film, running, play-back, restoring, cleaning, change of lamps and fuses, simple fault tracting and film splicing.

Printed material, covering the main points in the operations run through, for subsequent handling of the apparatus can be kept by the student after the lesson.

This was an example of the film projector instruction.

The effort has been made to produce a simple instructional material with the main emphasis on auditive reception and with the technical media available in most schools.

The illustrative material is used solely for reference in black and white to the part of the apparatus which the student has in front of him and on which he is to place his finger. By building up a not too complicated apparatus around the learning process, the advantage is gained that the system is usable also within County Centres for Educational Media, AV Centres and on in-service training courses.

In Austria, teachers cannot be employed unless they have attended at least 6 two-hour sessions on audio-visual media. In training centres for secondary school teachers, students have to take a similar 10-12 hour course during the third semester of their training. This is considered manifestly inadequate by the training staff, who themselves take a one-week refresher course every two years under the auspices of the Ministry of Education and the National Audio-Visual Centre (Bundesstaatliche Hauptstelle für Lichtbild und Bildungsfilm - SHB).

II - 1. - b.

In many countries, universities offer future teachers tuition in audio-visual media, educational communications and educational technology, in addition to classes and practical work in their own disciplines. Let us start with two examples in France.

The University of Paris V (Teaching and Research Unit for the Educational Sciences) offers students a combination of course units in education and pedagogics. Four of these are concerned with educational technology: programmed learning (grades I and II) and audio-visual techniques (grades I and II, ie degree and doctorate levels).

Each of these two requires about a hundred hours attendance during the academic year, including 36 hours of lectures. The remaining hours are spent on supervised practical work in "workshops" or schools where audio-visual techniques are used and on visits discussions in the field. In addition, students are expected to read certain works and articles and write a research paper. Practical work is carried out, by arrangement, at the Saint-Cloud Audio-Visual Centre. The first year introduction syllabus covers the following subjects in 1972-73:

- psycho-pedagogy in relation to audio-visual techniques (with special reference to problems connected with use of the image);
- non-projected aids, still projection, sound media, educational films, schools radio and different forms of schools television;
- examples of combined use of audio-visual media.

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In the second year, certain subjects are studied in greater depth, in 1972-73 these being:

- from the audio-visual to educational technology;
- systems of education "at a distance";
- audio-visual techniques and teacher training;
- the audio-visual and creativity: production of audio-visual media in schools.

University of Paris VII

This university also offers a two-level course entitled "audio-visual communication".

- 1st level:

.. two indissociable course units which can be included in any course of study (except medicine)

- Introduction to modern communication media: signs and images (1st
- Introduction to audio-visual practical work: (semester

or

- Introduction to modern communication media: sight and sound (2nd
- Introduction to audio-visual practical work: (semester

.. one general theory course unit:

- Communication, information and ideology (one year).

- 2nd level:

these course units are only open to students who have passed the two 1st semester course units the previous year

- structures and implications of media
- introduction to audio-visual production.

Practical work is arranged by agreement with OFRATEME.

The University of Sussex provides another example of courses for undergraduates.

"Objectives:

To change orientation of students to learner-centered approaches, empirical evaluation and team work and to give capacity for formulating criteria; evaluating, defining and choosing objectives; carrying out task analyses and choosing and adapting presentation media and teaching methods.

Facilities:

Audio-visual laboratory equipped with tape recorders, projectors, synchronisers and facilities for recording, duplicating, slide production and film editing. Standard graphics materials. Reference collection of non-text materials, case studies and reports on experiments in educational technology, surveys of task analyses, psychology of learning and teaching and programmed instruction.

Personnel:

One professor, one technician (attached part-time to course), special features: elements of self-instruction, team-learning and group decision-making.

Number of students: 45.

Content and methods:

Discussion of educational aims and objectives concentrating on consequences of failing to formulate objectives and their structure and of mismatching objectives and methods. Need for evaluation and revision of teaching. Principles of instructional design. Parallel workshop activities motivated by course requirements to design, construct and evaluate multi-media curriculum package. Familiarisation with audio-visual media

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in specially set up self-instructional laboratory. Equipment (concept-loop projector, 16 mm projector, tape recorder, slide projector, overhead projector, etc) arranged sequentially with flip board instructions and directions on tape etc, up to seven students simultaneously. Tentative teams and projects organised by students, with guidance (approximately 4-5 per team). Setting objectives, test construction, etc, carried out with tutor supervision, in small group sessions, group comparisons, informal discussions, etc. Media choices were made as late as possible as materials assembled and tests. The whole class discussed and decided on criteria for evaluating group products and groups judged other groups' products and their own, as well as the contribution of each group member to the project including self.

Assessment:

70% group and self-evaluation, 30% written examination (university requirement) - objective problem-solving items, comparison and evaluation items, free response (essay), free response analysis and design of instruction.

Duration:

One semester course with laboratory sessions. 100 hours."

II - 2. Training in a single technique

II - 2. - a.

In many universities it is possible to take courses in techniques related to educational technology, such as radio, television, film and, of course, programmed learning and data processing.

For example, Hornsey College of Art in London includes in its syllabus a one-term course on film and television.

"The course is open to lecturers and teachers who want to study film and television as providers of art and entertainment for young people. The main function of the course is to help teachers bridge the gap between popular mass culture and that of the classroom. Emphasis will be placed on film as the most developed of the modern visual media and the best suited to extended critical examination. These studies will be linked with the consideration of the aims, possibilities and limitations of television as a positive contribution to the young person's cultural environment."

Thus most of the major universities run courses on cinematographic art, a discipline which has won recognition in recent years despite occasional fierce opposition to such an intrusion.

The same attitude of mind explains the relative rarity of courses on radio and television in universities.

Courses on programmed learning and computer assisted instruction are gaining ground more rapidly but in the latter field they very seldom deal with computer assisted teaching. Courses on programmed learning have a more obvious educational application. For example, at the School of Education at Birmingham University, it is possible to take the following course leading to a diploma in programmed learning and educational technology:

"The course is designed for teachers and lecturers in colleges and departments of education and in technical colleges who intend to give instruction in programmed learning and allied techniques to those taking courses of initial or further training. The course should also enable some teachers to carry out research, devise new forms of programmed instruction and participate in the fundamental development of techniques and materials, or equip them to undertake advisory work with local education authorities.

The course will cover the following topics: theories, problems and practice of programmed learning, the psychology of school learning and thinking, objective testing and test construction, statistics and experimental presentation, curriculum development. It will also cover practical work, a certain amount of research and the preparation of a dissertation. Assessment of students will be based on four three-hour written papers, the dissertation and the practical work."

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The course run by Huddersfield College of Education provides another example.

"This course is designed to help school teachers and lecturers in colleges of further education to understand the potentialities and limitations of programmed learning and to learn to write programmes. An elementary understanding of programmed instruction is desirable but not essential. Course members will be given tutorial help in writing a programme of their own choice related to their professional work. This will be supported by background theory of writing objectives, test instruments, instructional strategies, sequence and frame writing, evaluation and methods of implementation. There will be planned work linking the two three-week blocks together. Any programme produced on the course will be the property of the course authority."

II - 2. - b.

Moreover, in addition to courses in various modern educational techniques lasting a year, a semester or a term, teacher trainees are able, if their courses are suitably arranged, to attend the type mentioned in section III in connection with in-service teachers.

Most of the countries which answered our questionnaire states that it was usual to hold short intensive courses in this field: one week on television, three days on film, ten days on photography, etc.

Many of these activities take place during the school holidays, when many one or two week courses on particular techniques are run by bodies which are not always connected with schools and universities and are as much concerned with extra curricular and adult education as with school education.

II - 2. - c

Similarly, answers to the questionnaire pointed to the existence of many audio-visual production sessions, usually confined to one technique (photography, film, tape recording, closed-circuit television, etc), which are run on a voluntary, extra curricular basis, often during the holidays or at weekends. Examples of such programmes are given in section III.

II - 2. - d.

Finally, there are a certain number of courses for future teachers, the aim of which is to give the latter training in cultural work based on certain media. The more classical ones are courses on cine-clubs or tele-clubs. Their importance should not however be underestimated, for the role of the teacher should not stop at the threshold of the school. He should be aware of the cultural value of media in the modern world and thus encourage the extension of the influence of school education. He should assist in developing the pupils' taste and their discernment with regard to mass media. He should be capable of guiding the pupils through the maze of influences outside the school and be able to integrate their effects into his teaching. The corresponding types of training will be covered in section III.

II - 3. Training in a single discipline

The majority of universities and institutes train secondary school teachers, especially, in a single discipline which occupies most of their time.

Audio-visual techniques should be incorporated in the framework of such subject teaching. This applies to all disciplines. Yet, we are bound to state that, according to our survey, with a few exceptions this is the case in only a few sectors such as the training of modern language teachers and science teachers.

The training of language teachers is inconceivable without language laboratory sessions and the use of, at least, records and tape recorders, and in fact most courses do include practice in these techniques.

This is illustrated by four examples of courses in Great Britain: the first at the University College of North Wales, Bangor, the second at Wolverhampton Teachers College, the third at the Holborn College of Law and the City of Liverpool College of Commerce and the fourth at the University College of Wales, Aberystwyth.

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"Diploma in English as a second language.

The course is for experienced graduate teachers both from this country and from overseas. (A person who is not a graduate may on the special recommendation of the college be admitted to candidature provided the university is satisfied that he is of the required academic standard to pursue a course of study for the diploma). Its aim is to promote the enlightened teaching of English as a second language by giving teachers an opportunity to combine the specialised study of the structure of English and of modern methods and materials for teaching the language with a relevant degree of more general linguistic training designed to provide the essential foundation for these studies, to facilitate the proper appreciation of the needs and difficulties of particular areas and speakers, and to ensure the future adaptability and continuing good judgement of the trainee in the preparation and evaluation of teaching materials. Formal instruction is supplemented by tutorial classes, and, where appropriate, by individual supervision and other forms of teaching.

The course includes the study of basic contemporary linguistics: phonetics especially the phonetics of English, together with practical calsses in performance and ear-training; the principles of grammatical analysis, with special reference to the grammar of English; the principles and usefulness of contrastive analysis; semantics; the social aspect of language; and teaching methods, including the use of audio-visual and audio-lingual techniques."

"Teaching of English as a second language (for teachers of immigrant children).

The course will have two major areas of study: language teaching and the social and cultural background of the immigrant child.

There will be a study of the general principles of second language teaching, with particular reference to the teaching of English, and this will entail an examination of the nature of the English language and relevant areas of linguistics. The course will also cover the teaching of pronunciation, the making and use of language tapes and other teaching aids. Students will examine and evaluate language courses and textbooks in use and they will be given opportunities to create material for themselves. Their experience will be broadened by visits to schools and language teaching centres. They will make a study of the problems of organisation in the classroom, in the school and in the community at large.

The course will also aim to provide teachers with a knowledge of the social and cultural factors affecting the performance of the immigrant child in school. Topics dealt with will include the background to immigration, the social, cultural and economic situation of immigrants in Britain, and the psychology of racial prejudice. Students will be asked to choose an area of language work or of sociology for special, individual study."

"Intensive courses in Russian.

The aim of these courses is to provide teachers with a sound basic knowledge of the Russian language. They are open to teachers whose knowledge of Russian may range from little or none to a standard between "O" and "A" level GCE. The courses are predominantly linguistic, with intensive instruction including language laboratory work, experience of which will be of general value to the teacher. Incidental reference will be made to Russian literature and civilisation, which should enable teachers to pursue such studies further after completing the course. Students may expect to reach a standard approximately that of a BA degree."

"Bilingual education.

The course is for teachers with approved teaching experience who wish to study problems involved in the teaching of bilingual children and in the organisation of education in bilingual communities, with special reference to bilingual areas in Wales and to the teaching of Welsh as a second language. The course will include lectures, seminars, training in the use and production of teaching aids and visits to bilingual schools."

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An introduction to the potential contributions of audio-visual media is also gradually being included in the training of science teachers, together with laboratory techniques.

Thus, in the context of science teaching, the University of Paris VII has a course unit on the use of audio-visual media in the teaching of physical sciences.

Worcester College of Education is one of many colleges which integrate the use of audio-visual aids in their physics courses.

These courses will include lecture-demonstrations on new approaches to school physics of the kind which have been explored in the Nuffield work and also on modern developments in physics which may influence the work being done in schools. Considerable time will be allocated for practical work in which it will be possible for teachers to familiarise themselves with new experiments, apparatus and other teaching aids.

We are gradually seeing the introduction of new techniques in training for other disciplines as well, especially art teaching and physical education.

The description of the gymnastics and athletics course at Coventry College of Education is significant in this respect.

"Recent trends in physical education will be examined in relation to the principles underlying the education of pupils in the primary and middle school age group.

Practical work in gymnastics will be based on the principles of movement formulated by Rudolf Laban. Consideration will be given to the use of these movement principles when teaching games, athletics and swimming. After some study of the basic games skills, time will be devoted to the more specialised techniques required for boys' and girls' games. Teaching methods appropriate for introducing athletics and swimming to the age groups concerned will be followed by a deeper study of selected skills.

Throughout the course observation and analysis of movement will be assisted by the use of films, loops and videotape."

It is to be hoped that in the years to come, training in any discipline will have to include training in the use of certain audio-visual media in that discipline and take account of the contributions of educational technology to the improvement of subject teaching.

II - 4. Integrated training

Teacher trainees divide most of their time between three activities:

- courses given by staff members in the subject of their choice (or, in the case of primary school teachers, in several subjects);

- critical observation of model classes taken by teachers in teaching practice schools of ordinary classes or of various school activities conducted by experienced teachers;

- teaching practice by student teachers.

Audio-visual methods and techniques should be firmly integrated in each of these activities.

II - 4. - 1. General and specialised teaching

Training college staff owe it to themselves constantly to integrate new methods and techniques in their teaching.

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What would trainees think of a teacher of natural sciences, for example, who only devoted a few sessions a year to the potential contribution of audio-visual media to the teaching of this subject and, for the rest of the time, taught in a completely traditional way without using such media? Or of a teacher of educational science who preached educational technology for one tenth of the course and the rest of the time approached his subject in the manner of Socrates? Unfortunately anomalies of this kind are frequent and the gap between theory and practice must be bridged as quickly as possible; for a young teacher will always end up by teaching in the way he himself has been taught. If his modern language teacher makes constant use of the tape recorder in the classroom and includes frequent laboratory practice, he himself will not be able to do without these aids when he becomes a fully-fledged teacher. This applies to the teaching of every subject: a geography teacher who deliberately includes films and slides in his lectures will be imitated by his students, etc.

Furthermore, when they arrive in a teaching establishment which is poorly equipped in audio-visual apparatus, they will protest against the deficiencies, demand proper facilities and serve as exponents of the new methods.

II - 4. - 2. Class observation

Here modern technology should come into play in at least two ways:

- tutors arranging visits to model, or even ordinary, classes should see to it that the teachers in charge make use, and if possible good use, of audio-visual media. Even if the results are less than satisfactory, at least they will have provided a basis for discussion: a bad teacher is better than no teacher at all. The tutor will thus be able to point out the advantages of using audio-visual media as well as mistakes to avoid;

- class observation is often made directly in a classroom, with the trainee present in the class along with some of his fellow-students. However, observation is being done increasingly by means of closed-circuit television, either live or recorded on videotape. This kind of supervised observation, recorded on appropriate grids, trains student teachers in the obligatory meticulous daily use of certain complex equipment. They are motivated to use hardware and software themselves if they discover its merits in this way. They become "technology minded" and are prepared to use the new technology because it has proved itself for them, and through them.

II - 4. - 3.

When trainees come to take their first classes in schools attached to their training colleges it is even more important that they should be required to make use of audio-visual techniques and media whenever the opportunity and need arises and whenever the software is available. Their first attempts may be clumsy but they will gradually get used to integrating the material in their lessons in such a way that it is not over subordinate, not to say superfluous. They must grasp that such material is as necessary a part of their lessons as the words they speak and that the two go together like dough and yeast in good bread.

These trial lessons should also provide opportunities for trainees themselves to make simple audio-visual material such as transparencies for overhead projectors, photographs, slides, etc. In the first place, such material is needed to supplement the standardised software sold or lent to schools by manufacturers. Secondly, active teaching methods using audio-visual media are inconceivable without some sort of production on the part of the teacher or pupils, and why not both? Then it is no longer a matter of more or less gratuitous practical work done within the training syllabus but of producing integrated material for a practical purpose.

II - 4. - 4. Availability of audio-visual centres and equipment

Finally, future teachers during their period of study at training college should work in a propitious environment where educational technology is ever-present.

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Learning resource centres should not be accessible only at certain hours but a place where students can carry out research, at any time, hear or view material for lessons they are preparing and educate themselves with modern media.

Photo laboratories should also be freely available and be a constant temptation for self-expression through images. A number of tape recorders should be on hand night and day. And why should not closed-circuit television serve as the main support for extra-curricular activities? Student teachers will only be truly at home with modern techniques when they have learnt to master them and to express themselves through them and with them. Film, television, stereo and photography clubs would be useful adjuncts to the audio-visual environment, providing good cultural diversions linking up with the "parallel school".

- III -

INITIAL AND ADVANCED TRAINING AND RETRAINING OF IN-SERVICE TEACHERS

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These types of training schemes are by far the most large-scale, as they affect all in-service staff, which in some European countries means hundreds of thousands of people. For most teachers never received the slightest groundwork, in or even information on, audio-visual educational techniques during their basic training and only a small proportion of them have gleaned a few ideas or pointers since.

They must therefore be given the opportunity to acquire a maximum of knowledge in a minimum of time with the least possible interruption of their teaching and, for this reason, advantage is taken of free days and school holidays.

Further training and regular refresher courses are also needed even for teachers who were trained in audio-visual techniques before entering the profession, and indeed for teachers who received on the job training, since this is a field in which change is very rapid - much more so than in the traditional fields of education.

To this end many schemes have been devised in different European countries both for the information and constant updating of all teaching staff and for intensive refresher courses for certain categories of teachers.

III - 1. Initial and further training of teaching staff as a whole

This takes many forms, of which we may mention the following:

III - 1. - 1. Radio/television broadcasts

One might expect that in most countries, school radio and television services would cover aspects of educational technology and keep the broad mass of teachers informed on the subject over the air and through related materials. Our survey shows that this is far from being the case.

And yet, with the methods used nowadays in teaching "at a distance" and especially for in-service training, it would not be difficult to devise broadcasts permitting a dialogue between specialists and teachers and arranged on the following lines:

- programmes defining the principles underlying the use of audio-visual media and technology;
- programmes/film reports showing the use of these media in situ;
- round table programmes for discussion of the above principles and applications;
- two-way broadcasts in which even distant audiences had a chance to express their ideas.

In this way, in a field as vast and new as educational technology, it would really be possible genuinely to motivate and interest teachers to a point where they were prepared to participate in a scheme and commit themselves. To quote the sponsors of the Teaching Workshop of French Radio and Television School, "the aim of such broadcasts is to provoke comment, discussion and questioning of accepted ideas, so that every teacher may realise that he is not working in isolation but is part of a creative movement involving his own initiative, intelligence and individual commitment and that it is necessary for him to exchange ideas with other colleagues".

While series of refresher broadcasts on modern mathematics and modern languages may have achieved these aims, it is a very different tale with educational technology which is a pity, in view of the challenging and challenged ideas expressed in this field.

Of the few modest attempts on these lines in relation to educational technology, we mention one by the Austrian educational radio service:

"Since all courses and seminars reach a small number of teachers only, we try now to address a greater number of teachers with the help of the television.

Short TV programmes of 2 to 5 minutes fill the intermissions on TV. These short programmes are entitled "Information for teachers" and show film extracts which are intended for class teaching. At the same time teachers are told where they can borrow such films.

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A programme of 28 minutes once a month is to make the teachers familiar with methods of audio-visual instruction and teaching examples. In order to prevent the programme becoming boring and in order to motivate inflexible and inactive teachers this programme is to take the form of a magazine. First, it deals with special AV equipment and then gives examples of various media and perhaps shows special AV events - (Fotokina, Didakta, etc)."

However, by and large, the tendency, especially in the RTS and the BBC is for examples of the use of audio-visual techniques in situ to be inserted in programmes for teachers: for example, uses of laboratories in programmes on the revitalisation of modern language teaching, use of films in programmes on technology, use of sound media in programmes on literature, singing, etc: this perfectly sound approach to the problem should nevertheless be supplemented by specific teacher training programmes on the use of audio-visual techniques.

III - 1. - 2. Protracted courses at universities and other institutions

Such courses are usually open to in-service teachers as well as students so that they have an opportunity of increasing their knowledge of audio-visual media by attending classes and practical work every week while continuing to teach. In the University of Paris V, for example, course units on audio-visual techniques comprise roughly 50% students and 50% in-service teachers.

The reader should refer above (pages 45-46) for details of these courses.

Some long courses are arranged so that in-service teachers can specialise without having to be seconded in order to pursue their studies.

There is a Spanish scheme on these lines, described as Grade I specialist courses which is being introduced by the Educational Documentation and Study Centre (CEDODEP) of the Directorate of Primary Education.

"The object is to build up a core of teachers with a thorough knowledge of audio-visual technology enabling them to deal with problems arising out of its use in connection with the application of these communication media to certain requirements.

Possible features of the course are:

- a duration of approximately 100 hours, comprising:
  - . theory: (audio-visual teaching methods, image perception, programming, integration);
  - . practice: (building of electrical circuits, location and repair of minor breakdowns, evaluation and preparation of software);
  - . demonstration and presentation of material;
- courses with small groups of people with previous knowledge;
- emphasis on individual participation in practical exercises, handling of equipment, criticism of materials and demonstrations, etc in order to achieve adequate technical dexterity.

The level will be determined by practical mastery of equipment and based on applied use. This may be termed "inside knowledge of audio-visual media". The courses will lead to the diploma of "basic specialist in audio-visual techniques".

Holders of the diploma will serve in this capacity, in the teaching centres to be set up, either full-time or part-time where traditional and audio-visual teaching methods are used. They may be employed in central and provincial audio-visual services, pilot schemes, staff training or any other post requiring a sufficient mastery of these techniques.

The theory section will include the study of the work "Audio-Visual Technology and Education", also published by CEDODEP, which provides adequate information. Background material and monographs are being prepared to assist this study.

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The programming of the practical section and standardisation of its activities have also been considered.

Software exists for demonstrations; but it would be preferable to have a collection of audio-visual material featuring the uses of media.

For the time being, the courses will have to be organised on a centralised basis until such time as sufficiently qualified staff are available to introduce training at this level in centres set up in different regions."

The CEDODEP does not intend to stop there and also plans courses for Grade II specialists.

"These may serve a dual purpose:

- general: to explore problems relating to audio-visual media at a more advanced level than that of Grade I specialists;
- specific: to train experts in radio, films, television, sound, scenarios and applied didactics.

Systematic planning of these courses is not possible at the moment. They will be primarily designed for teachers, inspectors, administrators, etc, ie people in positions of authority. They should be run on the lines of a seminar."

III - 1. - 3. Courses and study days

These are the most common means of acquainting teachers with the technical potentialities of audio-visual and other modern techniques. Their length varies considerably, from a single study day, arranged either on teachers' days off or on working days; to fairly long courses (generally 2-8 days, sometimes 15 days), either during the school year, during the holidays or overlapping the two. An original arrangement which is often employed is that of an initial course of one week followed by study days at intervals over the year.

Programmes vary a great deal, as we shall see below, being mainly theoretical in some cases, and strictly practical in others. However, in most cases, theory is combined with practice and handling of equipment with its utilisation in teaching situations, in differing proportions.

There is such a profusion of these courses in Europe that we shall try to define a number of categories, giving concrete examples of each.

a. Courses on general aspects of educational communication and the image

It is increasingly felt that teachers should master problems of educational communication through modern techniques and familiarise themselves with aspects of the visual image and sound image. As a result they will be able to integrate the contributions of the "parallel school" in their lessons and have a better understanding of media and incorporate them competently and effectively in their teaching.

The Commission d'Initiation a la Culture Audio-visuelle (ICAV), set up in 1966 under the aegis of the Comité Académique pour la Recherche Pédagogique, of Bordeaux, conducts a continuous training campaign in which courses are part of a wider context of research, experimentation and application. This training is based on a number of premises set out in the prospectus of the ICAV:

"AT THE GENERAL LEVEL

- AV is a phenomenon which takes the dual form of MEDIA AND MESSAGES.
- These messages, devised in an original way using words and images, serve to communicate ideas, impressions, facts and relationships.
- They are "consumed" in very considerable quantities even before school age.
- MEDIA determines a type of perception (audio and/or visual);
  MESSAGES are governed by specific codes (words and images).

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AT THE TEACHING LEVEL

- Audio-visual MEDIA and MESSAGES are used in teaching in the form of "audio-visual aids", as tools in an information process.
- Paradoxically, a great deal of study has been devoted to the instrumentality of what, for the sake of simplicity, has been termed "the audio-visual", and very little attention has been paid to the actual nature of its specific codes. Yet these codes and their combinations underlie all so-called audio-visual messages.
- Thus there has been a tendency to teach by AV before becoming familiar with, or teaching, AV itself."

Teaching methods bring together not only several categories of adults, usually from a teaching background (researchers, basic planners, experimenters), but pupils as well, in both the utilisation and production of media.

The ICAV group quickly realised that it was essential to go beyond the empirical stage and establish close and constant relations with basic research. This resulted in the following steps:

1. Individual and joint experimental research. The study of the findings showed that, in order to carry out such study, group members constantly need specific theoretical knowledge (theory training seminars).

2. General outlining and preparation of experimental programmes, limited experimentation with these programmes and completion of provisional materials.

3. Extensive experimentation with provisional material with the assistance of teachers co-ordinated by members of the ICAV group.

4. Analysis of findings obtained during experimentation, their comparison by all experimentalists and with theoretical data at ICAV general seminars. (Following such comparison, materials are "validated" or rejected.)

Members of the ICAV team work at several different levels according to the actual degree of their advancement in research.

Those working at basic research level (researchers) pass on their knowledge to other members of the team at regional theory seminars and are responsible for research as a whole.

A small group of "basic planners" working in close liaison with the researchers, devise experimental programmes which are tested on their own pupils and result in the development of provisional material.

A larger group of experimenters, trained at regional seminars and local courses take part in the validation of programmes. After validation, a "final" version of material is drawn up.

It should be noted that

a. the distinction between "researchers", "basic planners" and "experimenters" is not a hierarchical one but is based on actual responsibilities in the ICAV team;

b. information, requests, criticisms, proposals, etc circulate freely within the ICAV group (eg an experimenter can approach a researcher directly for clarification of a particular point. The reply may come to him direct or give rise to discussion during group work (in a course or seminar).

In the classroom, work follows the same pattern: individual and group work, inter-group discussions, discussions with the teacher who participates in the group work and, as the need arises, answers, queries, refers them to a more advanced group or proposes a joint approach to the problem (further work or documentary research) etc.

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Thus all those who take part in the ICAV, in whatever capacity (pupils, teachers, researchers) are part of a system of interaction which appears complex but helps to overcome the only too familiar impression of isolation and segregation.

Moreover, the desire to "keep abreast of the times" lessens the feeling of unfamiliarity (with the class, in the case of the child - with AV in the case of the adult).

The ICAV very often sets up a "group/class" which is a forum for very important discussions within the group itself as well as for incoming and outgoing ideas.

The aim of the ICAV is that pupils should gain an awareness of their different attitudes towards audio-visual and progress in their knowledge of it. In achieving this aim, work with them seemed to pass through four phases.

- Phase of experimentation: the pupils make contact with the subject of study.
- Phase of analysis of the subject studied by the pupils.
- Phase of maturation: at their own pace, pupils develop and compare the results of the previous phase; instead of being "receivers", they become "transmitters" before reverting to "receivers" once again.
- Phase of synthesis and formalisation: the pupils become aware of useful concepts and tools of analysis, at their level, for a good and clear apprehension of the previously defined subject of study.

The object of any ICAV training is to interest teachers in the audio-visual as an educational subject in itself rather than as a teaching aid. In this sense it generalises and amplifies previous training schemes, familiar in many countries, which are concerned with films and, less frequently, with television, as educational subjects, within the framework of film and television clubs.

The ICAV brochure justly makes the following claims:

The ICAV has rapidly introduced an innovatory trend

- in basic research (research on codes, on verbalisation, on the structure of the medium, etc);
- in documentary techniques: distinction in the analysis of photographic messages, for example, between the subject photographed and the photographic subject and precise and hierarchic determination of the parameters of the photographic subject;
- in teaching practices: the innovation of the ICAV has been to regard the audio-visual as an educational subject and not as an aid. It has brought out the fact that the relationship between pupils and the audio-visual was not known in scientific terms and underlined the need to define it objectively.

The ICAV has raised important side issues such as the rethinking of inter-pupil and teacher-pupil relationships (of which a scientific knowledge is needed).

The ICAV takes as its starting point the reception and creation of audio-visual messages by pupils themselves and not any knowledge of them which the "teacher" may possess.

(Experimentation has shown that it was a mistake to expect too much of pupils and that the presence of an organiser was necessary to stimulate awareness and to put order into ideas, work and documentation.)"

Having set out its principles, let us take a look at the ways in which the ICAV organises teacher training in the form of courses and tuition of various kinds.

First of all there are short courses such as the three-day seminars held in 1971:

1st day:
- opening of the seminar
- "didactics"
- discussion
- "open work - closed work"
- discussion (evening)

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2nd day:
- "informational aesthetics"
- discussion
- "myth and logos"
- "art and science of art today"
- discussion (evening)

3rd day:
- "does a semeiological approach to aesthetics exist?"
- discussion
- "medium dynamics - message dynamics"
- discussion
- conclusions.

Another type of seminar consists of several sessions spread over the academic year, such as the one on "messages and media" organised by the ICAV in 1972/73:

- 28 November: concept of code
- 12 December: connotation
- 16 January : the concept of sign
- 20 February : the concept of context
- 12 March : the concept of system
  "systemic" analysis of communication
- 3 April : the ICAV and the educational system.

The ICAV also runs local courses for teaching staff who use its method, which is based on its books and material.

The 1972 course for the département of Lot was essentially an introductory one:

1st day:
- "What ICAV stands for" (teaching, aims, methods, structures, etc)
- Where is ICAV going?
- Introduction to the SDDP of Lot-et-Garonne, followed by discussion
- Critical analysis of class 5 curriculum (1st year of ICAV) with discussion between senior and junior staff, and presentation of unpublished material

2nd day:
- Information on current research by the ICAV academic group on perception, verbalisation and sound
  discussion
- Critical analysis of class 4 curriculum (2nd year of ICAV)

3rd day:
- Critical analysis of class 3 curriculum (3rd year of ICAV)
- Overall study of the ICAV approach in the first cycle of secondary education
- Forecasts for the different schools
- Assessment of the course
- Wishes expressed by course/members.

The course for the département of the Basses-Pyrénées, also held in 1972, was aimed at a wider cross-section of participants.

1st day:
- Introduction of course to members
- Division into 2 groups
  a. experienced experimenters:
     . homogenisation of knowledge and method - definition of terms - clarification of earlier concepts - explanation of new concepts - study of material;
  b. future experimenters:
     . talks on the nature of ICAV - outline of the method - basic concepts - brief runover of 1st cycle textbooks
- ICAV classes in class 5 of Lycée - lesson: ringing the changes in advertising

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- Comments on the lesson - study of class 5 textbook
  Method:
  . account of guidelines and progression
  . choice of one key lesson per chapter. Each of these lessons to be taken by an experimenter with course members acting as pupils
  . comparison of results in various schools where the lesson has been given. Reports on experiments and critical assessment of the lesson or of the material

2nd day: class 4

- Presentation of class 4 textbook and work thereon using the above method
  Inventory of concepts conveyed in class 4; definition, illustration. Practical exercises
- Afternoon, continuation of the morning's work.
  Analysis of strip cartoons and practical work, at the general request of course members.

3rd day: class 3

- Study of provisional class 3 textbook using the above method
  Inventory of concepts introduced in class 3; definition, illustration. Practical exercises
  Critical assessment of provisional textbook and account of new experiments
- Study of a short film and practical work in the pupil situation
- Critical assessment of the course.

Similar attempts to those of the ICAV, approaching the audio-visual as an educational subject, are being made in various other European countries but, generally speaking, in a less systematic way.

b. General introductory courses on audio-visual teaching media

These courses are generally the most common and are to be found in every European country. They aim, in a few days, to give in-service teachers some basic idea of the various media and the corresponding hardware and software, together with a few examples of their utilisation. From the innumerable examples available we shall select the following:

- In Great Britain, the Educational Foundation for Visual Aids (EFVA) in 1972-73 was to hold three courses of 2-6 days on the basic principles of educational technology.

- The systems approach in education (2 days)

This course will consider the application of the systems approach to education. The definition of educational objectives, criteria for the selection of methods, modes and media, and testing and evaluating techniques will be examined and illustrated where possible by case studies.

- Principles of educational technology - diploma 1st year (6 days)

This course will discuss aspects of the following sections of the Diploma in Educational Technology syllabus - Characteristics of the Learner, Theories of Communication and Learning, and the Development of Learning Strategies. Ideas already considered in the course on systems approach in education will be further explored. The course is open only to students already enrolled for the Diploma in Educational Technology course.

- Principles of educational technology - diploma 2nd year (5 days)

This course is open only to students in the 2nd year of the Diploma in Educational Technology course. Full details will be sent to these students.

As early as 1970, the Coventry College of Education offered a course on the same subject which was described as follows:

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An introduction to educational technology for teachers and head teachers in primary and secondary schools, lecturers in colleges of education and colleges of further education and local education authority advisers. There will be practical sessions in which members can examine projected aids, closed-circuit television, language laboratories, teaching machines and programmed learning. Members will be helped to prepare teaching materials using the various media.

The courses held in London by the Centre for Educational Development Overseas (CEDO) are mainly designed for overseas educators.

These courses are usually from 7-10 working days in duration and are designed to cater for those who are unable to attend the longer courses but who wish to follow a course in audio-visual aids related to their special needs. Some of the courses are of a general nature covering such aspects as the following:

The place of oral and visual aids in education and as part of curriculum planning; the making and use of simple drawing and printed aids, flannelgraphs and plastigraphs, magnetic boards, wall charts, posters and models; the use of the camera, overhead projector, slides, filmstrips and film as teaching aids; the care and servicing of filmstrip, film projectors and tape recorders and the use of recorded material for teaching purposes, with special reference to English language teaching; the role of programmed learning, radio and television in education.

Other short courses may be of a more specialist nature, for example, basic photography, tape recording, or the care, operation and maintenance of audio-visual equipment under difficult climatic conditions.

In Austria, the SHB, in co-operation with regional teaching centres, arranges study days consisting of five two-hour lessons, for teachers of the 1st stage of secondary education:

1st lesson: What are audio-visual media?
Projection of slides

General survey, lending and providing of AVM, advice.
Instruments for school teaching and material for this equipment (hardware/software). Daylight projection, darkroom projection.
Projection by epidiascope, projection of slides (manual equipment and automation), copying press for the production of transparencies for the overhead projector and the usual transparencies.
Writing utensils for the overhead projector. Sound film, combination of slides and sound-tape, filmstrip. The slide.

2nd lesson: Projection of films

16 mm sound films: theoretical and technical survey. Presentation of a 16 mm film, (cable, setting up of a projector, loudspeaker, type of the projection screen). Methodical use.
Super 8 mm films in schools: single-concept films, film-loops and their use in school teaching.

3rd lesson: Television and video recorder/sound film projection

Public educational TV, within the school and within the class TV.
Unterrichtmistschau.
Video recorder, table for the TV camera.
Sound film projection: handling of the equipment, splicing of films and experimental exercises.

4th lesson: Methodology of audio-visual media with experimental exercises

The latest developments and trends.
EVR: electronic video recording and reproduction system.
Setting up of a programme, collaboration in the production of audio-visual aids (not the single media, but the entire plans).
Lists of the audio-visual media. The magazine "Sehen und Hören" ("Look and Listen"). Collections of the schools, lending system. The providing of educational films and some examples.

5th lesson: Software (tapes, records)/hardware

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Tape recorder, UKW radio and record-player. Methodical integration. Fundamental principles of the record-player.
Stereophonic performance in school teaching.
Microphone techniques.
Language laboratory: survey and use.
Exercises with the tape recorder and record-player.
Exercises with the sound film projector. Examination.

In Spain, the CEDODEP has introduced a basic training in audio-visual media consisting of information sessions followed by short courses.

Their purpose is to popularise the subject and no active part is taken by participants. They merely set out to convey a broad, overall idea of audio-visual media.

There will be 4 sessions, in all a maximum of 8 hours, which include four lectures together with corresponding demonstrations of audio-visual media.

The lectures will deal with:

- audio-visual media in general
- equipment
- software
- service installations.

Support material (such as slides, records, magnetic tapes and, if possible, films) will be available to reinforce the lectures and illustrate some types of audio-visual educational communication.

Under the auspices of CEDODEP, thematic outlines have been prepared for those who are to take instruction sessions. Corresponding appropriate audio-visual material is also being prepared.

The current series of sessions can be organised intensively in major towns and be held in teachers' centres and similar meeting places.

Introductory courses:

The purpose of these is to supply teachers with AV information and give them the opportunity to employ the audio-visual techniques which are a necessity for any educator in this day and age.

Their characteristics will be as follows:

- a duration of approximately 30 hours made up of theory sessions: modes of analysis and study of materials;
- groups limited to a maximum of 25-30 participants;
- active participation and assured output will be required;
- the standard will be elementary, assuming only an initial groundwork in audio-visual techniques; this may be described as knowledge of audio-visual media seen from the exterior.

The book "Audio-visual Media in Schools" published by CEDODEP will be used in the theoretical section of the course.

For the practical section, some "leaflets" have been printed setting out, in an almost programmed fashion, operations to be carried out with equipment.

Material is available for demonstration and the preparation of series of slides for illustration purposes is in hand.

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Such courses take place either in teacher training colleges or in suitable teaching centres. They are also open to young trainee teachers and might therefore also be included in section II - 1. of this report.

These information sessions and courses are part of an overall plan culminating in the specialist courses described below in III - 1.2. The following table summarises the characteristic features of three types of training:

	Information sessions	Introductory courses	Elementary courses
Duration	8 hours	30 hours	100 hours
No. of participants	40 - 60	25 - 30	20 - 25
Form	No. individual participation	Individual work	Individual work
Diplomas	None	Certificate of practical work	Elementary specialists' diploma
Objectives	Motivation	Knowledge of AV media "from the outside"	"Inside" knowledge of AV media
Texts	Thematic outlines	"AVM in schools"	Audio-visual and educational technology
Audio-visual material	General information	Samples and description of equipments	Study of complete material
Working material		Practical work sheets	Practical work sheets
Qualification after the course	Teacher of general subjects	Tutor in a teacher training centre	Qualified secondary teacher

In Belgium, the training system is based on a network of centres which offer teachers voluntary initial and further training courses.

"It should be noted that a National Audio-Visual Centre as well as 15 regional centres attached to teachers' training colleges have been set up. Here the main objective is to familiarise teachers with different types of equipment and enable them to explore their potentialities. These centres are usually run by the "audio-visual" tutors who are in charge of the voluntary courses.

Regional centres operate on Wednesdays from 2 - 5 pm and are open to any state school staff wishing to take further training courses comprising 10 sessions. These are limited to a maximum of 10 or 12 participants in order to make practical exercises and adequate training possible for every course member. The courses are run on a continuous basis. Strenuous efforts have been made to provide audio-visual equipment in order that the voluntary courses and the centres should prove as effective as possible. Regional centres and voluntary courses also receive non-durable material for practical work:

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photo film, 8 mm films, magnetic tapes. They also subscribe to specialised periodicals and there are plans to help them form a library. Lastly, films dealing with different aspects of the audio-visual are distributed to these centres through the national centre. Specialised inspectors run these courses and centres and ensure proper co-ordination. These inspectors arrange for refresher courses for the organisers, who are also sent on visits to audio-visual centres abroad (Saint-Cloud, Munich, etc). It is also planned that, in addition to providing a general training in audio-visual techniques, each regional centre should gradually specialise in a particular area. Thus one centre would specialise in slide-tape presentations, another in overhead projector techniques, yet another in programmed learning techniques, etc. Each in its own specialised area, would act as the consultation and documentation centre for the other centres and for teachers interested in a particular technique."

Other forms of training are also used in Belgium. For example, every year a seminar, consisting of five-hour sessions on eight Saturdays is held, for about thirty in-service tutors and teachers selected from a very large number of applicants and covers important aspects of the audio-visual. In 1971-73 the chosen topics were as follows:

- from the audio-visual to educational technology (2 sessions);
- audio-visual based teaching systems;
- the development of the educational film and of its use in teaching;
- current trends in schools television (various types of messages and their use);
- closed-circuit television as a new teaching aid;
- production of audio-visual media at school;
- the contribution of audio-visual media to teacher training.

In France, there are numerous forms of general and intensive training in audio-visual media, of which we shall mention but a few.

Many Centres Régionaux de Documentation Pédagogique (CRDP) run short courses for in-service teachers, either independently or in co-operation with INRDP and OFRATEME.

Thus, in 1972-73, the CRDP in the Paris educational area held 6 sessions for voluntary participants. Each session consists of 4 periods:

- 2 lecture/discussion periods on visual and audio-visual aids (teaching apparatus and materials);
- 2 periods of practical work in audio-visual workshops (with the option of the "sound workshop" or the "video workshop").

The order and content of these periods is given below:

1st period (common to participants from both workshops)

Lecture/discussion: integration of the episcope and epidiascope with teaching;
the overhead projector, techniques and production of materials;
still, 8 mm and super 8 film projectors.

2nd and 3rd periods (workshop practice)

"Sound workshop"
Tape recording practice
reading, recording
(microphone, radio, record player);
group monitoring;
special techniques (mixing, dubbing,
synchronisation, picture/sound);
additional equipment.

"Video workshop"
Closed-circuit television:
camera, receiver, video recorder;
picture, sound recording;
mixing and electronic editing;
rerecording;
Examples of production of film sequences.

4th period (common to participants from both workshops)

Presentation/discussion: the tape recorder integrated in teaching: examples of its utilisation in different disciplines;
Analysis of sound programmes, including photographic programmes, made by teachers in their schools.

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In 1971-72 there were 8 sessions attended by a total of 314 teachers. Courses are also run for teacher training staff.

For example, one week's work with the Audio-Visual Centre of the Ecole Normale Supérieure of Saint-Cloud is a feature of the basic reorientation course for teacher training college tutors which takes place at Saint-Cloud.

In 1971-72 the following subjects were selected in agreement with course members:

- the audio-visual and teaching;
- mass media sociology and picture semeiology;
- techniques of sound;
- overhead projectors;
- still and motion picture projection;
- 16 mm films
  . cinema screening
  . television screening;
- 8 mm films;
- closed-circuit television;
- AV and the teaching of French;
- AV and the teaching of mathematics.

A further week was spent on programmed instruction.

The one-week course organised the same year by the Audio-Visual Centre of Saint-Cloud for teacher training staff undergoing retraining at the Dijon centre was of a slightly different order. The programme consisted of 2 elements:

.. Audio-visual media as teaching aids
(comprehension of audio-visual messages by school audiences)

Tuesday: 2-3 pm: general introduction to the course
3-5 pm: problems connected with the use of the still image

Wednesday: 9-12: films motivating self-expression
. showing of 3 short films
. sound programme illustrating work produced by children after a showing of the film "The River"
. teaching implications of research findings on comprehension of these 3 short films
2-5 pm: presentation of an audio-visual teaching unit on the theme "the sea"
(medium length motivation film, short didactic films, accompanying slides)

.. Audio-visual media as training aids
(observation of behaviour)

Thursday: Research on the use of closed-circuit television
9-12: closed-circuit television and research on analysis of teaching behaviour
2-5 pm: closed-circuit television and research on the effects of self-observation

Friday: Films as a training aid
9-12: examples of recordings of primary classes practising modern mathematics; film as an aid in behavioural observation
2-5 pm: final period: recapitulation.

OFRATEME arranges courses for students of the Ecole Nationale Normale d'Apprentissage (ENNA) of Paris North. The 1972 programme was as follows:

Monday: 2 pm: - Opening of the course - exchange of views on current and future activities of participants and on what they expect of audio-visual techniques. Possible adaptation of the work programme in the light of this discussion.

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3 pm: - Conditions for incorporation of audio-visual material in the strategy of the teaching process.

Tuesday: 9.30 am:
- Sensitising approach to classroom observation.

2 pm: - Professional behavioural analysis (self-observation and micro-teaching) with successive and possibly comparative presentation of audio-visual material on classroom situations.

Wednesday: 9.30 am:
- AV and programmed learning.

2 pm: - General assessment of the course.

3 pm: - Discussion on subsequent co-operation at training and experimentation level.

c. Courses on techniques and methods

A considerable number of courses are concerned with techniques, with the emphasis on equipment, its structure and handling, and on the methods frequently associated with techniques, since it is hard to separate the two, especially with multi-media usage in view. However, the survey carried out in Europe shows that the vast majority of these courses are concerned with a single technique, doubtless for reasons of ease of presentation and arrangement, as this seems to imply a curious priority of hardware over software and equipment over teaching content.

Here are some examples of courses of this kind which cover the whole gamut of audio-visual aids.

The EFVA in Great Britain, to a greater extent than any other European body, covers the whole range of audio-visual techniques in separate courses which are listed in its annual prospectus for 1972-73.

Display techniques in education (2 days)

This course will review a varied range of non-projected aids (eg wallcharts, flannelgraphs and magnetboards) and their applications in teaching. Course members will learn how to produce their own materials and will do so under expert guidance. Display and exhibition layout will also be considered.

DT/5 Tuesday and Wednesday 10-11 April

Reprography and the preparation of learning materials (2 days)

A comparative survey of photocopying and duplicating methods with particular emphasis on processes which are more likely to be available in schools and colleges. Photo-stabilisation, diffusion transfer, dyeline, infra-red dual spectrum and electrostatic copying, and spirit, ink stencil and offset duplicating are discussed. The principle of each process will be outlined, and its advantages and limitations assessed. Practical sessions will be included. The organisation of reprographic services in a school or college will also be considered.

REP/16 Thursday and Friday 12-13 October

Audio media in primary and secondary education (3 days)

Amongst the lectures on this course there will be sessions on the use of the tape recorder and on other audio aids such as the Synchrofax and Language Master. There will also be lectures on the use of closed-circuit and broadcast radio and on practical aspects such as microphone techniques and script-writing. Course members will produce a tape/slide teaching programme and at the same time learn practical skills.

AM/8 Tuesday to Thursday 6-8 February

The language laboratory - structuring of materials (2 days)

This course is intended for teachers who have little or no experience of teaching in a language laboratory. There will be a detailed study of drills and exercises for use in the language laboratory. There will also be lectures on teaching method in the language laboratory and on its daily organisation.

LL/17 Thursday to Friday 2-3 August

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The overhead projector - presentation and learning (2 days)

This course is designed to assist teachers, lecturers and training officers who have had little or no previous experience in using the overhead projector. Subjects discussed will include: the advantages and limitations of the overhead projector compared with other media; the design of the overhead projector and viewing arrangements for its use; the selection of suitable writing surfaces, pens, pencils, lettering and shading materials; the design of transparencies, including the use of overlay and revelation techniques; and the advantages and limitations of different photocopying processes for preparing transparencies. Practical sessions will be included on drawing materials and photocopying methods.

OPA/37 Monday - Tuesday 9-10 October

The overhead projector - presentation and learning - advanced (2 days)

This course is designed for teachers, lecturers, and training officers who have already had considerable experience in using the overhead projector. Although it will cover the same topics as the above course, less time will be spent in discussing elementary principles in order that a greater range of techniques can be surveyed. Practical sessions will be included.

OPB/21 Wednesday - Thursday 4-5 October

Photography in education (2 days)

The topics discussed will include: the perception of projected pictures by students, the selection of cameras and accessories for use by teachers and children, the preparation of recorded commentaries, technical considerations in classroom projection, and teaching methods and creative work with slides and filmstrips. The course will be limited to still photography and will not attempt to provide a basic introduction to picture taking and processing. Practical work will be on copying methods, the preparation of synchronised commentaries on tape and other techniques of particular value in primary and secondary education.

PH/7 Monday - Tuesday 2-3 April

Making 8 mm instructional films (5 days)

The topics covered in this introductory course will include: the applications of 8 mm films in education and industrial training; the selection of cameras and accessories; camera techniques; script writing; the preparation and filming of titles and diagrams; animation; editing and splicing; projection equipment and conditions. Practical work will form the main element in the course, four or five single concept films being produced.

IF/11 Monday to Friday 27 Nov. to 1 Dec.

The moving image in education - new developments (2 days)

The course will survey the latest developments in the methods of producing both projected and electronic moving images, and will examine these in relation to current educational trends towards variable grouping. Educational criteria for selecting appropriate presentation devices from equipment currently available and from possible future developments will emerge from discussion.

MI/2 Monday - Tuesday 30-31 July

Educational broadcasting as a resource in ROSLA situations: implications for teacher training (3 days)
(In conjunction with the Schools Broadcasting Council)

This course is designed to enable those engaged in teacher training (initial and in-service) to study in practical ways the potential of the broadcast media in the development of new patterns of secondary school curricula - with particular reference to the use of resource materials in the education of 14-16 year old pupils. BBC Education Officers and producers will be involved and the course will be structured around a number of workshop situations in which production aims and methods and the conditions making for effective classroom use of broadcasts will be studied in relation to each other. Many of the exercises used in the course will be intended to have direct methodological application in teacher training.

EB/1 Tuesday to Thursday 17-19 October

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The use of educational broadcasting in first school education: new developments and their implications for teacher training (3 days)
(In conjunction with the Schools Broadcasting Council)

This course will be structured to facilitate practical study by those concerned with teacher training (initial and in-service) of the use of educational broadcasting in first school situations. It will include workshop exercises designed to throw light on the ways in which "mass media" are relevant to the purposes of individual and group learning. BBC Education Officers and producers will staff the course and its scope will take into account the relationships between programme planning and production and classroom utilisation of material. The practical sessions of the course will be so designed as to have potential methodological application in teacher training.

EB/2 Tuesday to Thursday 5-7 June

The course on educational films run by the FWU in Munich provides another example of a course on a single technique:

Monday:	Opening	
	9.30-10.15 am:	Structure and working methods of the institute Discussion - tour of the premises
	2.30-3.30 pm:	Recent developments in equipment
	3.30-5.00 pm:	Demonstration and trying out of equipment.
Tuesday:	8.30 am - 12.30 pm:	Participation in one of the institute's work sessions
	2.30-3.15 pm:	The teaching context as the starting point for planning the utilisation of audio-visual media (including television)
	3.15-4.00 pm:	Discussion
	4.00-5.00 pm:	Demonstration (continued).
Wednesday:	8.30-9.15 am:	The didactic aims of educational films
	9.15-10.00 am:	Discussion
	10.15-12.00 pm:	Round table discussion on: "The criteria of didactic analysis of a film"
	12.00-12.45 pm:	Introduction to the techniques of the editing table (in groups) Free afternoon.
Thursday:	8.30 am:	Submission of written questions
	8.30-11.00 am:	Presentation and analysis of 2 short educational films at the editing table
	11.15 am - 12.30 pm:	Showing of the films analysed, report on the results of the analysis
	2.30-5.00 pm:	Presentation and discussion of models concerned with subjects currently at the planning stage.
Friday:	8.30-11.00 am:	Showing of the final version of a film of the institute and compiling of different versions for the commentary
	11.15 am - 1.00 pm:	Presentation of these commentaries including the institute's version
	2.30-4.00 pm:	The technique of reproducing films and slides
	4.00-5.00 pm:	Final discussion.

It should be noted that all these courses are not merely diversified in relation to the techniques they tackle. Many combine handling of equipment with guidance on its use and also with an introduction to production which is necessary in order to promote active and creative utilisation of audio-visual messages.

A special course run by the EFVA stresses these aspects:

"The creative use of audio-visual media (3 days)

This course will explore the potential of photography, film making, television, tape recording and tape/slide presentations as media for creative work by students in schools and colleges. Visiting lecturers will describe some possible techniques and there will be an opportunity to experiment with some of these approaches during practical sessions."

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Some courses concentrate solely on production, like the one on the production of 8 mm films, but nearly all the rest include sessions of practical work.

Two systems more complex both technically and methodologically, receive special attention: closed-circuit television and the language laboratory.

For example, the EFVA runs series of courses on closed-circuit television, some providing a brief introduction to production and other practices in actual production work. In 1972-73 the courses were as follows:

"Closed-circuit television production A (2 days)

The many and varied applications of closed-circuit television to education are surveyed before considering the functions of a small studio in producing teaching or training programmes. The duties of the production team are discussed and the handling of equipment demonstrated before undertaking practical exercises. Course members are asked to prepare in their own time scripts for short talks which are presented, recorded and discussed during the second day. The schedule of duties is arranged so that each member does every job in the studio during the course of the day.

TVA/71	Monday and Tuesday	4-5 September
TVA/72	Wednesday and Thursday	6-7 September
TVA/73	Wednesday and Thursday	1-2 November
TVA/74	Monday and Tuesday	15-16 January
TVA/75	Wednesday and Thursday	24-25 January
TVA/76	Thursday and Friday	22-23 February
TVA/77	Wednesday and Thursday	18-19 April
TVA/78	Wednesday and Thursday	9-10 May

Closed-circuit television production B (5 days)

This course is only for those who have previously attended a two-day course at the centre. The first day will be spent in consideration of the application of CCTV to course members' fields of operation. Equipment and studio utilisation, production planning and script-writing will be discussed. After a "refresher" exercise, production teams will be formed to spend the next day and a half preparing the scripts of fifteen minute programmes, and the succeeding day and a half in rehearsing, presenting, and recording them for discussion and analysis on the final day of the course.

TVB/26	Monday and Friday	6-10 November
TVB/27	Monday and Friday	16 February - 2 March
TVB/28	Monday and Friday	14-18 May

Most countries also run courses on language laboratories. This time we shall take the Institut für Film und Bild in the Federal Republic of Germany as an example:

Monday:	9 am - 1.00 pm:	Opening Talk: New productions of the institute in the field of modern language teaching and their utilisation in the classroom and laboratory. Discussion.
	3-6 pm:	Technical principles and recent developments of the language laboratory (types of equipment, design of premises, special installations).
Tuesday:	8.30 am - 1.00 pm:	Practical experiments in making tapes for language laboratories. The visual component in laboratory work. Division into working groups.
	3-6 pm:	Current trends in the methodology and didactics of laboratory work.
Wednesday:		The programme is drawn up by the documentation centre in Berlin and includes, inter alia, visits to schools.

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Thursday:	8.30 am - 1.00 pm:	Address of welcome by the Director of the institute. Talk on the "language laboratories" circle for the exchange of experimental data and the information centre for modern language research. Discussion of visits. Production of a laboratory exercise using slides.
	3-6 pm:	Continuation and completion of group work.
Friday:	8.30 am - 12.30 pm:	Presentation of group work.
	2-4 pm:	Final discussion: outward orientation of work, collaboration with other centres. Bibliography on laboratory work.

In addition to courses on audio-visual techniques as such, many bodies run courses on techniques and methods which play a considerable part in educational technology alongside audio-visual media, the principal of these being programmed instruction and computer assisted instruction.

The commonest courses are those on programmed instruction.

For example, Brighton College of Education holds 6-day courses which are described in the following terms:

For teachers in primary and secondary schools, lecturers in colleges of education and colleges of further education. The course will consist mainly of practical sessions during which members will be able to examine existing programmes and machines, discuss the various methods of writing and producing programmes, and the ways in which programmes can be used in different types of educational situations. A number of visiting lecturers will speak on specific topics. It is hoped to make arrangements both for those who are new to the subject and for those who already have some knowledge.

In France, the Ecole Normale Supérieure of Saint-Cloud and OFRATEME also run courses of varying length in this field. The course arranged by OFRATEME in 1972 in co-operation with the Institut National de Formation des Adultes (INFA) for its own staff, who are mainly teachers on secondment, is a typical example:

Monday:	9.30 am:	Opening. Introduction to the course and exchange of views with participants. Distribution of bibliography. Critical appraisal of programmed materials (team exercises).
	2.30 pm:	Programming techniques. Individual practice in preparing linear items. Background development of programmed instruction.
Tuesday:	9.30 am:	Stages in programming. Educational objectives. Individual practice on operational objectives.
	11.30 am:	Study of the population concerned by the programme.
	2.30 pm:	Behavioural analysis with team exercises.
Wednesday:	9.30 am:	Behavioural analysis with team exercises.
	2.30 pm:	Semantic analysis.
	4.30 pm:	Arrangement of the programme.
Thursday:	9.00 am:	Problems arising out of analysis of the material to be programmed.
	10.00 am:	Individual and group teaching machines.
	2.30 pm:	The algorithms of critical studies according to Skinner's orthodox principles, with team exercises.
	4.30 pm:	Computer assisted instruction.
Friday:	10.00 am:	Guided tour of the University of Paris VII.
	2.30 pm:	Programmed instruction and teaching methods.
	4.00 pm:	Educational technologies (round table discussion between staff and course members).

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In these new fields of educational technology, the Ecole Normale Supérieure of Saint-Cloud also holds long and short courses on data processing and OFRATEME holds short courses on teaching machines and group multiple-choice testing systems.

d. Courses on the various disciplines

Here two kinds of courses must be distinguished. In some cases the object is to study the use of one or more audio-visual techniques in a particular discipline, while in others, attention is paid to new techniques in the context of the pedagogical reform of the teaching of a discipline.

In both cases the courses are intended for experienced in-service teachers who are already proficient in their subject.

Our various examples of courses on the use of audio-visual media in a particular discipline are again taken from France.

Here, first of all, is the 1971 programme of a practical course on the production of audio-visual materials on natural sciences, run by OFRATEME for educational advisers.

Tuesday:	9.30 am - 12.30 pm:	Reception of participants. Opening of course. "Arrangements for the production of natural science material at OFRATEME". "Stages in the making of a single concept 8 mm film".
	2.00-6.00 pm:	Group work (4 groups). Critical analysis of an existing short film: "The respiration and locomotion of the Aeschen larva". Plenary session. Comparison of analyses. Discussion. "Geology: slides or films?". Their respective teaching advantages. Projection of some single concept geographical films suitable for use in geology.
Wednesday:	9.30 am - 12.30 pm:	Groups I and II (according to region). Practical information (with demonstrations) on some technical aspects of specialised photography: macroscopy, microscopy. Slow-motion, high-speed shots. Animation, models, super-imposition. Aerial shots. Problems encountered in the final editing of a film. Choice of shots, etc. Groups III and IV (according to region). Establishment of a possible regional programme of geology films.
	2.00-6.00 pm:	Group activities reversed.
Thursday:	9.00-11.00 am:	Plenary session: Reports by group rapporteurs. Establishment of an initial programme of short 8 mm geology films.
	11.00 am - 12.30 pm:	Group work, with each group making a study of the teaching aspects of one of the topics it put forward.
	2.00-2.30 pm:	Continuation of group work.
	3.50-5.30 pm:	Plenary session: presentation of group studies - discussion.
Friday:	9.00-11.00 am:	Plenary session: Discussion on one or two of the studies between the original group and a producer: run through of the study of film scenario.
	2.00-3.00 pm:	"Schools television and biological sciences".
	3.00-3.30 pm:	Discussion on the part that course members and teams of regional producers could play in the production of schools television programmes.
	4.30-5.00 pm:	Close of course.

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The Audio-Visual Centre of the Ecole Normale Supérieure, Saint-Cloud, also arranges courses on special subjects for French or foreign teachers. These are usually intended not for primary or secondary school teachers but, in keeping with the function of the Ecole Normale of Saint-Cloud, for teacher training staff: teachers from Centres Pédagogiques Régionaux or Ecoles Normales. A few examples of courses on different disciplines are quoted below:

- One-week course for geography teachers:

Monday	Morning:	Reception. Audio-visual expression and geographical facts.
	Afternoon:	Contribution of reprography, the episcope and the overhead projector (talk followed by practical work).
Tuesday	Morning.	Continuation of practical work on the production of overhead transparencies.
	Afternoon:	Projection of stills (talk followed by group assessment sessions).
Wednesday	Morning:	The various contributions of animated film. Critical viewing of 16 mm films.
	Afternoon:	Critical viewing, in groups, of short 8 mm films. Plenary meeting for group reports.
Thursday	Morning:	The educational contribution of television (closed-circuit and network). Lecture and general discussion.
	Afternoon:	Critical viewing of various programmes in groups. Plenary meeting for group reports.
Friday	Morning:	Presentation of a geography teaching multi-media package. Discussion.
	Afternoon:	Final discussion and assessment of the course.

- Course for teachers of French literature:

The Saint-Cloud Audio-Visual Centre describes its course for teachers of French literature as follows:

The planning of the course must take account of the changes currently taking place in the teaching of French in the second stage of secondary education. In other words, it is not a matter of placing a new range of teaching aids at the disposal of a teaching system whose aims and methods are otherwise stable, but of linking the introduction of audio-visual methods with particular trends in this teaching sphere (the link being obvious in some cases, such as in new disciplines like techniques of expression).

Plan of the course:

1. Presentation and demonstration of equipment (from the overhead projector to the video-tape recorder). This introduction to the course (which could be made a standard part of a course on any other discipline) should be regarded as a process of familiarisation with audio-visual technology from the point of view of its potentialities rather than of programmes. Work in groups or workshops focusing on the main types of equipment (talks and handling of equipment).

2. At this point which begins on the actual subject involved, two aspects have to be taken into consideration: the role of the audio-visual and the scope of the subject. As things are at present, the teaching of French in the 2nd cycle may be divided into 3 sectors:

.. teaching of literature;
.. theatre, films and new media;
.. techniques of expression.

.. Teaching of literature:

This will begin with a presentation of existing programmes (slides, records, films, TV programmes). They will be selected according to availability, materials here being relatively interchangeable since the same approach to literature is adopted whether the slides are on Rabelais or Chateaubriand; the same

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applies to poetry records, for example, or films on literary history (Voltaire/Rousseau/Diderot). At the same time the existence of an implicit programme policy underlying these resources will be shown, one which is in keeping with a concept of literature and its teaching, which can be rapidly outlined. The need to harness together audio-visual technology and the current movement to rethink theory in the field of literary studies will be demonstrated. This may be done using a number of examples.

.. Theatre, films and new media:

This sphere, which has gradually separated itself from the teaching of literature without really acquiring an independent status, is the sphere of audio-visual intervention par excellence. It may therefore be dealt with fairly quickly:
- using sample programmes;
- describing experiments such as those of the ICAV with regard to actual audio-visual didactics and the possible resultant exercises in class.

.. Techniques of expression

This too is a new sphere which is not as yet clearly defined but whose introduction into universities suggests that it will become a generally accepted part of secondary education. It covers ideas on communication from the point of view of both the instrument (language) and the situation.

In every case, the utilisation of audio-visual material within the course to promote knowledge and stimulate awareness should not conceal the truly innovatory prospects presented by the audio-visual in the practical teaching of these subjects: for instance, it should be made clear that the introduction of a recording in the circuit of communication produces a qualitative change and that well thought out use should be made of such potentialities.

Great Britain can provide us with examples of general study courses on the pedagogical reform of a discipline which includes activities involving the use of audio-visual media.

. The use of the environment in the education of children aged 3 to 13 years:
(St. Martin's College of Education, Lancaster)

For head and assistant teachers, lecturers in colleges of education, local organisers and inspectors, interested in nursery, infant and junior education. The programme will include lectures, discussions and practical work involving visual education, movement, music, language and science.

. Education from 8 to 13:
(Hockerill College of Education) (10 days)

For head and assistant teachers in primary, middle and secondary schools, for local education authority advisers and for lecturers in colleges of education who are responsible for junior/secondary and middle school courses. The emphasis in practical work will be on science, art and literature and on the way language develops from all three. Consideration will be given to the place of audio-visual and other modern teaching aids in the education of children of this age range. There will be lectures and opportunity for discussion on characteristics of boys and girls between 8 and 13, other aspects of the curriculum and organisation for the middle years.

. French
(organised in France by the Department of Education and Science - 15 days)

For teachers of French in primary and secondary schools, establishments of further education, and colleges and departments of education. The course will include lectures, films and group work, in French, on varied aspects of French life and culture; pronunciation practice in small groups coached by expert French phoneticians; and guided visits to places of interest in and around Paris, including optional evenings at theatres. Special attention will be paid to methods of presenting French in the classroom; a language laboratory and audio-visual materials will be available, together with a large and representative display of French books.

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It is highly regrettable that many single-discipline courses run by European countries do not accord an important place to audio-visual methods and media. As many of these courses are compulsory for teachers, the inclusion of such training would be much more effective in the long-term than specialised courses on audio-visual media which are often only attended on a voluntary basis. Moreover, there is reason to suppose that, once large numbers of teachers were aware of the potential contribution of audio-visual media to the teaching of their disciplines, they themselves would request additional courses on the utilisation of the new techniques, if not on production.

e. Courses for educators and educationalists in special sectors

Our survey of Europe reveals that in some countries very specific courses are held which are not always designed for teachers in the ordinary educational systems but for educators in the wider sense of the word or even for people who are not educators but play a part in introducing audio-visual techniques for educational purposes.

There is a growing need to train teachers, librarians or documentation staff capable of running efficiently the learning resource centres rapidly being set up in training colleges and educational establishments. As far as we know the widest range of courses for such personnel in 1972-73 is presented by the EFVA in Great Britain.

The organisation of audio-visual media in schools (2 days)

This seminar will provide a forum for exchange of views between those concerned with the efficient organisation of educational technology in schools. The subjects discussed will include the administration of audio-visual media; the concept of the learning resource centre; the design of accommodation for the production and use of audio-visual aids; arrangements for the requisition, storage, booking and servicing of audio-visual equipment; the indexing, storage, and retrieval of materials; and the in-service training of staff.

OMS/3 Wednesday - Thursday 15-16 November

The organisation of audio-visual media in colleges of further education (2 days)

This seminar will provide a forum for exchange of views between principals, heads of departments and lecturers concerned with the efficient organisation of educational technology in colleges of further education. The subjects discussed will include: central service units and other possible arrangements for the requisition, storage, booking and servicing of audio-visual equipment; the relevance of the learning resource centre concept to further education; the production, indexing, storage and retrieval of non-book materials and the in-service training of staff.

OMT/5 Monday - Tuesday 7-8 May

The organisation of audio-visual media in polytechnics (2 days)

This seminar will provide a forum for the exchange of views between those concerned with the effective development of educational technology units, learning resource centres and other administrative structures; the design of accommodation for the production and use of audio-visual media; arrangements for the requisition, storage, booking and servicing of audio-visual equipment; the indexing, storage and retrieval of non-book materials; and the in-service training of staff. Particular attention will be given to the assistance in course design which educational technology units can give within polytechnics, and to the problems arising in providing services to widely dispersed departments.

OMP/1 Wednesday - Thursday 31 Jan. - 1 Feb.

Learning resource centres in secondary schools (3 days)

This course for local authority advisers, head teachers, teachers, and school librarians is designed to assist schools which are either in the early stages of developing a resource centre, or are considering the relevance of the resource centre concept to their own situation. The main emphasis in the course will be on the development of the school library as a multi-media collection, but the role which the learning resource centre could play in assisting teachers in preparing instructional material will also be discussed.

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Other subjects covered will include the cataloguing, indexing and storage of non-book materials; criteria for the selection of audio-visual equipment for individual and small group study; and central support for the school centres by the local education authority. Case studies will be included from schools which have already established resource centres.

RS/5 Tuesday - Thursday 12-14 December

Learning resource centres in secondary schools - seminar (2 days)

Attendance at this seminar is limited to educational administrators, teachers and librarians who are responsible for the management of existing learning resource centres in secondary schools. Participants will be invited to submit for discussion problems which have arisen during their work, and syndicates will be formed to consider these and other questions.

RSS/2 Thursday - Friday 18-19 January

(Attendance on RSS/2 is restricted to participants in Seminar RSS/1 which was held on 10-11 February 1972)

RSS/3 Tuesday - Wednesday 6-7 March

Learning resource centres in colleges of education (2 days)

This conference is primarily intended for representatives of colleges of education who have either recently established learning resource centres, or who may do so in the near future. Visiting lecturers will describe existing college resource centres, and course members will participate in a simulation exercise which will consider the not unrepresentative difficulties which Lazarus College of Education is meeting in developing a resource centre.

RC/3 Monday - Tuesday 16-17 April

Local education authority audio-visual services (2 days)
(Organised in association with the Central Council of Advisers in Audio-Visual Education)

This conference will provide an opportunity for administrators and inspectors from local education authorities to discuss ways of organising audio-visual services. It is especially hoped that authorities who have not appointed an audio-visual adviser will be assisted by this meeting. The topics discussed by visiting speakers will include the evaluation and purchase of audio-visual equipment and materials; the maintenance and repair of equipment; photographic, reprographic and other services; audio-visual services in the teachers' centre, and the provision of in-service training. Case studies will be included.

LEA/2 Tuesday - Wednesday 27-28 March

A number of bodies have recently made efforts on behalf of teachers at establishments for maladjusted or handicapped children.

For instance, the Audio-Visual Centre of the Ecole Normale Supérieure of Saint-Cloud has started courses for teachers at special schools who are training at the Centre National de Pédagogie Spéciale at Beaumont-sur-Oise.

The aim of the programme, which covers seven days, is to promote an awareness of the problems encountered and to arouse a lasting interest by providing a simple production by simple techniques; more complex techniques can be dealt with in subsequent courses.

The subjects covered, which in every case are approached from the standpoint of an educational method geared to this problem, are listed below:

I - Information

Tuesday 10.00 am - 12.00 pm: Reception of participants.
Teaching problems arising out of the use of audio-visual techniques.
2.00-5.00 pm: Still projection.

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Wednesday	9.00 am - 12.00 noon:	Comprehension of audio-visual messages (account of experimental research).
	2.00-5.00 pm:	Teacher training by closed-circuit television (account of experimental research).
Friday	9.00 am - 12.00 noon	Overhead projection.
	2.00-5.00 pm:	Slide/tape presentation.

II - Preparation and production of audio-visual materials

Monday	9.00 am - 12.00 noon	Use of closed-circuit television.
Tuesday and Wednesday	9.00 am - 12.00 noon and 2.00-5.00 pm:	Creation of slide/tape presentations the combined use of the tape recorder and slide projector.
Friday	9.00 am - 12.00 noon 2.00-5.00 pm:	Making of overhead transparencies.

Here comprehension and use of messages are seen in relation to maladjusted children, as in practical work, since making audio-visual materials at school gives such children additional opportunities for self-expression.

Outside the sphere of children and school in the strict sense of the word, there are also courses for educators, educational innovators and training staff working in a variety of sectors usually responsible to ministries, departments and other public or private bodies not part of the Ministry of National Education.

For example, OFRATEME in France runs courses geared to different sectors and tries to adapt the training accordingly, as the outlines of the following three programmes show:

.. Course for instructors at ground weapons staff colleges

1st part of course:

Duration:	5 half-days	Technical and technological grounding.
Tuesday	9.30 am:	Opening meeting. Exchange of views on problems encountered by participants. Details of level in audio-visual theory and practice: clarification of guidelines of the course in the light of this information.
	11.00 am:	Audio-visual material in a learning strategy (conditions for its inclusion - problems encountered).
	2.00 pm:	Technical and methodological study of uses of the video-tape recorder (studio).
Wednesday	9.30 am:	Technical and methodological study of uses of the tape recorder (sound workshop).
	2.00 pm:	CCTV practical work.
Thursday	9.30 am:	Summary of technical and practical problems of picture and sound recording for educational purposes.
	11.00 am:	Guidelines in preparation for the 2nd part of the course.

2nd part of the course: Introduction to production

Monday (1st)	2.00 pm:	Definition and delineation of the subject in relation to an analysis of objectives.
Monday (2nd)	9.30 am:	Practical preparations for production.
	2.00 pm:	Production.
Monday (3rd)	9.30 am:	Production.
	2.00-6.00 pm:	Production and critical viewing.

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The intervals between the three days of the second part of the course give participants an opportunity for individual and collective reflection on their on-going production work.

3rd part of course: Behavioural analysis

Wednesday	9.30 am:	Behavioural analysis, based on evaluation of the production work, dealing with problems of self-observation and group observation (with critical viewings and practical exercises).
	2.00 pm:	Continuation of the morning's work.

At the request of the Ministry of National Defence, the course adopts a concrete approach and the programme's time-spread should allow time for ideas to take shape as well as for additional reading and other activities.

.. A course for training staff at the Centre d'Education Permanente of the University of Paris I follows a different pattern while focusing on case studies.

Monday	9.30 am:	Analysis of the training situation demand, expectations and objectives, limitations.
	Afternoon	(Studio): programme preparation (content, methods, media).
Tuesday	Morning	Training case study - presentation.
	Afternoon	Work in three groups - presentation and discussion of group work.
Wednesday	Morning	(School studio): viewing of tapes made on Monday and Tuesday.
	Afternoon	(School studio): study of group phenomena.
Thursday	Morning	Problems and methods of evaluation. Presentation of a second training case.
	Afternoon	Preparation of a programme for the training case study (all participants). Take-over of a working session (two groups).
Friday	Morning	Meeting of two groups for joint action; application with an ad hoc audience.
	Afternoon	Evaluation of the content of the second case study. Evaluation of work on the second case study.
Saturday	Morning	General assessment of the course. Close.

.. The following is another example of an adapted course, in this case for youth, sports and leisure organisers; the emphasis is again on practical problems linked with a certain type of training, with the course leading up to a production.

1st part of course: Technical and technological grounding

Monday	2.00 pm:	Opening meeting: discussion on current and future activities of participants, on problems facing them, on what they expect of knowledge of audio-visual techniques and, specifically, of introduction to the production. Clarification of guidelines of programmes. Presentation of equipment.
Tuesday	9.30 am:	Problem of behavioural analysis (practical exercises).
	2.30 pm:	Theory of magnetic recording of picture and sound.
Wednesday	9.30 am:	CCTV practical work.
	2.00 pm:	CCTV practical work. Guidelines for the second part of the course (preparation for a production theme).

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2nd part of course: Introduction to production

Monday (1st)	2.00 pm:	Definition and delineation of the subject in relation to an analysis of objectives.
Monday (2nd)	9.30 am:	Practical preparations for production.
	2.00 pm:	Outside filming with light equipment.
Friday	9.30 am:	Production (studio).
	2.00 pm:	Production and critical viewing.

We could quote innumerable examples of such courses for specialised training staff, but will confine ourselves to just two more, the first of which is again taken from the list of courses run by the EFVA.

Audio-visual media in industrial training (4 days)
(Organised in association with the Industrial Society)

This course provides a general introduction to educational technology for industrial training officers who have had little experience in the use of audio-visual media. NAVAC training department staff and visiting lecturers will discuss and demonstrate non-projected aids, slides and filmstrips, the overhead projector, 8 mm and 16 mm films; closed-circuit television; the tape recorder and photocopying and duplicating techniques. The contribution which can be made by programmed learning and the systems approach to training will be assessed. Some sessions will include practical work for course members.

The second example is provided by the Scottish Film Office which runs one-day courses on the uses of audio-visual techniques in industrial training.

Objectives: To provide company training officers and others involved in training and personnel, with information on making the most effective and imaginative use of audio-visual techniques to:

a. improve the quality of instruction and training;
b. make training more interesting and acceptable;
c. increase the cost effectiveness of training;
d. encourage maximum participation of students.

Method: Participants would be made aware of:

a. the range of systems and materials available;
b. how to acquire information and advice on them;
c. procedures for hiring and purchasing of materials and equipment;
d. by undertaking an assessment exercise they would be given guide lines for assessing the potential usefulness to them of particular films and programmes.

Programme

9.30 am	Introduction - objectives of the course.
9.45 am	Film "Visual Aids" and discussion.
10.45 am	Making the best use of audio-visual techniques. A wide range of audio-visual techniques (eg the overhead projector, tape/slides, feltboard and magnetic board) will be made use of in order to teach the handling of the 16 mm projector, their value as learning aids will be discussed and practical advice given on their preparation and use. New developments in the audio-visual aids field (for example, CCTV, video-discs and video-cassettes) will be discussed.
1.30 pm	Exploring the value of film as a training medium.
1.45 pm	Film assessment (with particular relevance to management and supervisory development). Three films will be shown: - an instructional film on a manual skill; - a film on supervisory training; - a management training film. The contents and techniques of these films will be subjected to analysis in order to assess their value in developing manual, supervisory and management skills.
4.15 pm	Summary of conclusions.
4.30 pm	End of seminar.

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Short courses are held for teachers in post or about to be posted to some geographical regions.

The organising bodies are the same as those mentioned under section I - 2. but it should be emphasised that courses of this kind are not exclusive to Great Britain and France but are also to be found in other countries, such as the Federal Republic of Germany, Belgium and Sweden.

There are other types of courses for executive or administrative staff with responsibilities in the audio-visual field who have to know how to express themselves through these media. For instance, the Audio-Visual Centre of Saint-Cloud has designed a course on audio-visual expression, comprising talks, discussions and practical work, for a number of UNESCO staff.

In 1971 the Audio-Visual Centre of Saint-Cloud and OFRATEME also organised a refresher course for all UNESCO audio-visual experts serving in French-speaking Africa. A similar course was held in Great Britain for UNESCO experts serving in English-speaking Africa.

The reader is bound to be surprised by the infinite variety of all these courses although we have tried to condense them into a limited number of categories in the interest of clarity.

In addition to radio/television broadcasts, classes, courses and study days, yet other methods are employed, either simultaneously or independently, in the initial and further training of in-service teachers.

III - 1. - 4. Self-instruction for teachers

Our survey points to a number of original experiments in which teachers are supplied with printed and audio-visual material to enable them to carry out their own training.

The system used in Belgium - described in section III - 1. - 3b - relies to a large extent on individual work by teachers based on a given skeleton work plan and on course sessions.

Several training colleges and colleges of education in Great Britain are moving towards this type of study.

However, nowhere does this kind of training seem to have been so systematically explored and applied as in Sweden where, as we have already seen in section II - 1. similar methods are also used in the training of future teachers.

For in-service teachers the Ministry of National Education has developed "Audio-Visual SIM", a self-instruction kit which deserves a closer look.

The idea is to familiarise teachers with 4 types of equipment (2 duplicators, 4 16 mm film projectors, an overhead projector and a tape recorder) and to train them in the making of both sound tapes and film. A new series is being prepared on the handling of 8 mm cameras and projectors and video-tapes. For every piece of equipment and every programme the teacher is given a booklet and a tape recording to guide him step by step in his training.

Each booklet opens with a description of the equipment. The instructions are brief and easy to follow and are accompanied by illustrations and photographs. The tapes and booklets contain sufficient information for the teacher to learn by himself how to handle the most common equipment in use in schools.

The kit is very cheap and is regularly reissued in order to ensure that it is constantly up-to-date.

Thus teachers are taught techniques by techniques.

III - 1. - 5. Information and document self-service

Even the self-instruction schemes mentioned above call for a distribution infrastructure on the lines of media centres or learning resource centres where teachers can find basic or supplementary material for their programmes.

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However, as recommended in relation to future teachers under section II, 3, 4, a very liberal approach to the hours of opening of such centres and to arrangements for making training material readily available is essential to ensure that the times suit teachers who are working and so enable and tempt them to drop in frequently in order to obtain up-to-date information, handle equipment at leisure and make materials at will. Audio-visual training premises should be familiar to them and not some kind of sanctuary reserved for initiates.

Special columns in educational journals and reviews specialising in new educational techniques should also play a great part in this continual training process: these again, are tools which teachers should always have to hand.

Lastly, in order to keep their attention focussed, a small number of textbooks, ideally 2 or 3, should also be at the constant disposal of teachers, one dealing with general educational problems in relation to audio-visual aids, another with technical aspects and the third with the renovation, through new techniques, of the teaching of the subject in question.

III - 1. - 6. Other methods

Undoubtedly the application of these new techniques to teacher training will give rise to other methods which will tighten the information network and open up wider prospects. The effective advent of video cassettes and cable television is also bound to have repercussions in this vanguard sphere.

We can already point to an innovation introduced in Austria, namely mobile demonstration units. The teachers no longer come to a national, regional or local training centre; the demonstration unit goes to them.

"A travelling exhibition, the so-called "Wanderausstellung audio-visueller Unterrichtsmittel" of the Ministry of Education installed in a big bus visits all Austrian schools even the most remote ones. Experienced technicians and teachers introduce eg a model of a language laboratory (audio-active and audio-active-comparative system), a video-recorder, film projectors, tape recorders, overhead projectors, etc. The teachers gather in groups by subject and get an introduction in the use of these aids both from the technical and the methodological point of view. We want to reach all teachers in Austria by this new means of information."

III - 2. Retraining of certain personnel

The methods mentioned above are mainly suitable for the rapid training and continuous further training of teaching staff and certain other educators.

When the issue is not to keep in-service teachers informed and up-to-date or give them further training, but to retrain them for new schemes or specific assignments, prolonged training is necessary, in which methods such as those described in section III - 1. are used at a different pace, and a variety of methods are specially designed for the purpose. As regards the scheduling of such retraining, where excessive absence of teachers from their classes is to be avoided a popular formula seems to be one or more fairly short courses (1-3 weeks, often partly or entirely during holiday periods) supplemented by study days.

Such schemes are applied to somewhat different objectives.

III - 2. - 1. Retraining in the use of audio-visual media and educational technology as a whole

An increasing need is felt in some countries to retrain certain teachers to perform a liaison role with the mass of their colleagues. For a variety of reasons it is not possible for them to take long, continuous courses such as those described in section I, so the alternative of courses spread over a period of time or days set aside each week is used. We give two examples.

In France, the Bordeaux educational district has an interesting scheme designed to retrain certain teachers in order that they may guide and advise their colleagues. The Centre Régional de Documentation Pédagogique of Bordeaux describes the features and objectives of this innovation as follows:

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Origin

The district Sub-Committee on the Reform of Audio-Visual Teaching held a course at Bordeaux on 22 and 23 May 1970 at which the idea emerged of training teachers able to convey information on the use of audio-visual media to their colleagues.

The Inspector of National Education of each département was asked, at the beginning of the 1970-71 academic year, to select a teacher in his area to act as an "aide pour la pédagogie de l'audiovisuel" (audio-visual teaching counsellors). There are at present 70 such counsellors in the educational district.

Objectives

The counsellor must act as a stimulus to teaching in his area, giving his colleagues ideas and information on audio-visual matters and providing the seeds of a solution to any problems they may have:

- the introduction of AV in schools may help to establish new teacher-pupil relations;
- this introduction is necessary in order to prepare children for life in the modern world.

Training

Training is provided at courses organised on a regional or département basis. Counsellors should not be given sets of instructions but, on the one hand, theoretical knowledge of AV as a means of communication and, on the other, training in teaching methods which will develop a critical faculty in children vis-a-vis the audio-visual.

The following subjects have been put forward for 1972 and 1973:

- the production system for audio-visual materials;
- AV - as a tool
  - as a language
  - as a process of communication;
- perception of AV by the child;
- methods of assessing the work of counsellor.

Again in France, one of the most original training courses, provided under different schemes by the Institut Pédagogique National and subsequently by OFRATEM, for a number of years, is concerned with teachers from experimental secondary schools at Marly-le-Roi, Sucy-en-Brie and Gagny, all suburbs of Paris.

Every year a certain number of teachers work part-time at these schools and spend the rest of their time on a retraining course.

The prospectus published by OFRATEME for the 3rd course (1970-71) describes its organisation, objectives, guidelines and methods as follows:

Organisation

As in the previous year, 16 part-time posts will be available.

Participants will all be in-service teachers at one of the three experimental audio-visual schools (8 at the secondary school at Marly-le-Roi).

The course will last 30 weeks, with attendance at group and collective activities totalling 12 hours a week (Tuesday and Friday), ie 360 hours in the year.

Objectives

The main objective of the 1970-71 course is to train teaching co-ordinators for junior secondary schools which are trying out new educational techniques.

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The idea is to pave the way for rationalisation in situ of the staff resources and equipment available to a school in which technical media are being used. This rationalisation is carried out as part of the renovation of curricula and objectives also being undertaken by the Institut Pédagogique National.

This training is consequently quite distinct from both that of a head of a teaching department, who is responsible for the curriculum and methods within a particular discipline, and that of a producer of educational media.

The functions of an educational co-ordinator, which are gradually and jointly determined during the course, appear from the outset to denote an original professional profile which demands special qualities in teachers and administrators in addition to those usually required for teaching:

- individual aptitude for change and leadership;
- practical ability to follow up a policy of introducing new educational techniques;
- the capacity to organise and control an educational micro-system aimed at improving teaching results and making the best possible use of available resources.

Viewed from this angle, the 1970-71 session may be regarded as the first phase of a three-year plan to work out the content, methods and approaches of a training programme for heads of education and senior staff of schools, based on the experience acquired with the experimental establishments.

Guidelines of the programme

a. Techniques:
   - Training in the use of equipment in the classroom and the school.
   - Techniques of utilisation.
   - Inventory of sources of material.
   - Analysis of material.
   - Some straightforward types of production.

b. Technology:
   - "Systemic" analysis.
   - Definition of objectives.
   - Combination of media in a teaching unit.
   - Differentiated teaching patterns.
   - Monitoring and evaluation.

c. Organisation:
   - Rationalisation of children's work
     - the various teaching progressions
     - redistribution of school and extra-curricular activities.
   - Rationalisation of the work of teaching staff
     - team work
     - division of work
     - specialisation of duties
     - redistribution of duties among teaching staff and auxiliaries.
   - Full use of potential, yield, efficiency.

d. Relations:
   - Practical exercises in communication.
   - Conduct of meetings.
   - Communication and hierarchical relations.

e. The experimental situation:
   - Information on educational research.
   - Reform/innovation.
   - Development of research.
   - Experimentation in the field.
   - Methodology of observation and continuous monitoring.

Methods

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The staff team and course members will be together in a research situation in accordance with the guidelines of the preceding programme.

Course members will, in addition, be expected to assume specific responsibilities within the course, which is regarded as an educational system in itself.

Each course unit (see above: techniques, technology, organisation, relations, experimental situation) constitutes an independent entity under the sole direction of a leader responsible for its content and methods as well as for the activities of any other members of the staff team who may participate in the unit.

Each unit backs up its theoretical teaching which field applications and individual and group practice.

Applications and practice are covered, in each unit, by work contracts with course members, which include provision for continuous monitoring at the discretion of unit leaders.

In order to avoid isolating the experimental schools and to enable them both to give conventional schools the benefit of their experience and to profit themselves from innovations in conventional schools, OFRATEME is planning a second regular course to following the introduction of audio-visual techniques in schools where the innovation and research teams show promise.

The schools concerned would be conventional but well-equipped ones where there is an apparent need for specific training for teachers who would have the task of organising and co-ordinating the various schemes.

The activities, which will be additional to those of the annual course, reflect the same concern that training problems should not be isolated in an artificial situation. In this way the experimental schools will benefit from the experience of other schools. If the converse is true, the general introduction of all or part of the experiments, methods and media which have begun to prove their worth could be contemplated.

Taken as a whole, such training activities necessitate a large amount of teaching material, the preparation of which is in hand:

- Anthology of educational radio/television.
- Self-instruction material for training in the use of audio-visual equipment.
- Support material for the introduction of new educational techniques (video-tape recorder, TV lectures, multiple choice testing systems, simple programmed learning machines, etc).

New outlets are thus gradually emerging for a rational overall contribution to change which is reinforced by the pragmatism of its approach.

To consolidate the work of the experimental schools in this field would be a worthwhile contribution.

Because their aim is to improve the effectiveness of teaching, schools which are trying out new educational techniques make it obligatory for any training system to be more firmly founded on objective facts responsible policies and operational techniques.

III - 2. - 2. Retraining in modern methods and techniques of teaching certain disciplines

Training schemes of this kind are being introduced in sectors in which, a thorough revision of teaching methods is taking place. Which, in most European countries, means in the teaching of modern languages, technology and mathematics. In most cases such retraining schemes include audio-visual media, including radio and television, but use them as training aids or tools. Their objective is not audio-visual media and methods as such and often, through some audio-visual intermediary, they reveal methods which are, in fact, very traditional and owe little or nothing to educational technology.

However, there are some notable exceptions, particularly in the modern language sector, where audio-visual media are increasingly becoming an integral part of teaching methods. For instance, the Saint-Cloud Audio-Visual Centre runs retraining courses for teachers who use its "Happy Families"

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method for young children in primary schools. It must be remembered that the teachers concerned are generally primary school teachers who are not qualified to teach English at the outset, their own knowledge being only of baccalauréat standard.

Retraining is carried out through the use of a combination of three methods:

- short courses, usually during school holidays;
- on the spot classroom visits by specialists from the Audio-Visual Centre acting as teaching advisors;
- visits to England, also during school holidays.

It should be noted that this retraining is only conducted on a voluntary basis.

An example of a five-day course at the start of a retraining programme is given below:

Monday	9.30-11.00 am:	Reception of participants. Presentation of experiments in teaching English in primary schools. Objectives of the course. Screening of film (elementary class 2). Discussion.
	11.00-12.00 noon:	Language class (2 groups).
	1.45-2.45 pm:	Elementary class 2 (2 classes). Discussion
	2.45-4.30 pm:	Stages in the utilisation of an audio-visual unit. Explanation.
Tuesday	9.30-10.30 am:	Repetition and correction of pronunciation. Questions on pictures.
	10.30-12.00 noon:	Language class (2 groups).
	1.45-2.45 pm:	Elementary class 2 (2 classes). Discussion.
	2.45-4.30 pm:	Tutorial work (3 groups).
Wednesday	9.30-10.30 am:	Recorded exercises, active exercises and games.
	10.30-12.00 noon:	Language class (2 groups).
	1.45-2.45 pm:	Elementary class 2 (2 classes). Discussion.
	2.45-4.30 pm:	Tutorial work (3 groups).
Thursday	9.30-10.30 am:	"Happy Families 2", written work.
	10.30-12.00 noon:	Language class (2 groups).
	1.45-2.45 pm:	Elementary class 2 (2 classes). Discussion
	2.45-4.30 pm:	Tutorials (3 groups).
Friday	9.30-10.30 am:	"Happy Families 3" - learning checks.
	10.30-12.00 noon:	Language class (2 groups).
	1.45-2.45 pm:	Elementary class 2 (2 classes). Discussion.
	2.45-4.30 pm:	Breakdown of weekly activities. Problems of arranging early experience of English. General conclusion.

III - 2. - 3. Retraining in certain techniques

There are other training schemes which are designed to retrain in-service teachers in the use of certain techniques. They differ from those described in section III - 1. - c. in that they do not take the form of a rapid introduction or further training in a matter of days but of prolonged training aimed at providing a thorough and methodical grounding.

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It will come as no surprise that the most common retraining courses in educational technology are in the field of programmed learning and data processing.

The course run by the University of Sussex to train tutors in programmed learning is a good example. The way in which the study sessions are arranged to suit in-service teachers is particularly noteworthy.

"Objectives

Ability to prepare programmed materials for use in schools and colleges of a local authority. Students were drawn from all levels of the school system and additional objectives included mutual understanding of each other's goals and working methods by teachers at primary, secondary and tertiary levels.

Facilities

Tutors from National Centre for Programmed Learning, local authority advisor.

Number of students

Initially 15.

Methods

Intensive one week introductory course on basic concepts of programmed learning (in the wide sense), following one-day teachers' conference when students were selected by the advisor. Secondment (from school duties) was given for two days a week. One day each fortnight was devoted to seminars and programme writing guidance. At the end of the first term a second group of teachers was selected and overlapped the first group, some of whom become assistants, and so on. Teachers were able to continue their preparation and widen their experience over a period of at least a year. The number of tutors required for follow-up sessions was one or two - depending on the range of advice needed.

Outcomes

A collection of shared programmed materials was built up, knowledge of programming techniques was spread widely and general improvements in classroom teaching beyond the use of programmes was reported by local authority inspectors. Teachers on the courses shared their knowledge and experience and co-operated in work which cut across levels of schooling. Intensive use of resource materials was made and experiments and evaluations were carried out to help to make decisions about practice. Multiplication of training by appointment of teacher with full year's training (c, above) as advisor and use of seconded teachers to help in training.

The course in data processing provided by the Ecole Normale Supérieure, Saint-Cloud, at the request of the "Délégation Générale à l'Informatique" is a voluntary retraining course, extending over a year, for certain educators in the Paris area. The course is arranged on the basis of 2 days a week per teacher, one of these being Wednesday, their free day. The education authority therefore releases a so-called group A on Tuesdays and a so-called group B on Thursdays, so that each group receives 2 days of continuous instruction and joint activities for both groups can be arranged on Wednesdays.

The aim of the course is not to train professional data processors but to teach teachers data processing language so that they can use it in their own subjects. It sets out primarily to train these teachers in a number of quite indispensable thinking patterns which should gradually permeate the whole of teaching with a "data processing mentality". On their return to their schools after retraining, the teachers should be capable of instructing their colleagues and pupils in the main aspects of data processing.

The main subjects of the course are as follows:

- introduction to the general data processing course;
- algorisms;
- data processing and teaching;
- work on desk calculators;
- supplementary mathematics, concepts of set theory;

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- mini-calculators;
- wooden computers for students: models for simulation;
- computerised documentation;
- algorisms on lists;
- general algorisms;
- methods and prospects for computer assisted instruction;
- Fortran course;
- spectrum of research, data processing and teaching in the United States;
- analog computation;
- an example of modelling: the world economic growth model of MIT;
- general presentation of the system;
- teaching application of computerised learning;
- introduction to other data processing languages.

III - 2. - 4. Retraining of staff for certain specific duties

Lastly, retraining schemes to train teachers or new-style teachers in new sectors or for extra-curricular or further educational activities are becoming increasingly common.

a. The oldest examples of these are schemes to train film club and TV club leaders, which have existed for a long time.

For instance, the Scottish Educational Film Association runs a course of four weekends (long weekends, since they include Thursday, Friday and Saturday) which aims to combine introductory classes in cinematographic art with a grounding in filming.

Details of one such course extending over May and June 1973 are given below:

"1st weekend:

Thursday	2.15 pm:	"The structure of the film industry" followed by discussion.
	3.00 pm:	The way we see (composition I).
	5.00 pm:	Lines of images (composition II).
	8.15 pm:	Screening of "Major Dundee".
Friday	9.00 am:	Cameras lenses and pictures.
	11.00 am:	One image/two images (editing).
	1.45 pm:	Scripts and story-boards.
	3.00 pm:	TV exercises.
	5.00 pm:	Film as commodity - a case study of "Major Dundee".
	6.00 pm:	"Critical attitudes to the cinema."
	8.15 pm:	Second screening "Major Dundee".
Saturday	9.00 am:	Group work - preparation of scripts and story-boards.
	11.00 am:	Close.

2nd weekend

Thursday	2.00 pm:	"Story-board to production planning".
	3.00 pm:	Group work on scripts and story-boards.
	4.00 pm:	Lecture/discussion "Reading film images".
	8.15 pm:	Screening of "Ashes and Diamonds".
Friday	9.00 am:	Film exercises - complete day - groups under supervision. (If filming finished in time, discussion on classroom management and filming in the classroom before dinner.)
	8.15 pm:	Discussion on film imagery with particular reference to "Ashes and Diamonds".
Saturday	9.00 am:	Editing: principles and examples plus practice sessions.

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3rd weekend

Thursday	2.00 pm:	"Building sound tracks with 4-track tape recorder".
	5.00 pm:	Initial viewing of exercise rushes.
	6.00 pm:	"Authorship and Genre".
	8.15 pm:	Screening of "My darling Clementine".
Friday	9.00 am:	Editing of films and building of sound tracks. Group work as per previous weekend.
	5.30 pm:	Discussion on Ford.
	8.15 pm:	Screening of "The Left-Handed Gun".
Saturday	9.00 am - 12.00 pm:	Screening of "Guns in the Afternoon". Discussion on the western.

4th weekend

Thursday	2.00 pm:	Criticism session on film exercises.
	8.15 pm:	Discussion of films made in schools.
Friday	9.00 am:	"The nature of sound and making sound effects for film".
	11.00 am:	Making a sound track for a film of selection of slides.
	4.00 pm:	Criticism of completed exercises.
	5.00 pm:	Discussion on courses on film study.
	8.15 pm:	General session on the structure of possible courses for EELA pupils.
Saturday	9.00 am - 11.00 am:	Recap session."

Spain has done more than any other European country in the training of TV club leaders. By 1971 there were 4, 353 television clubs in Spain, all in rural areas. In the preceding years 14 regional courses had been held to t..in club leaders; they were attended by 1, 357 participants, and 1, 097 diplomas and 260 certificates were awarded.

The courses include theory classes, practical classes and group work.

Theory classes

The following subjects are covered:

1. Origins and foundations of popular culture.
2. Analysis of social mobility.
3. Leisure and popular culture.
4. Promotion of cultural activities and relevant teaching methods.
5. Community development and TV clubs.
6. Methods and techniques of community development.

Theory classes specially designed to brief leaders on possible activities within TV clubs are also held on the following topics:

1. The theatre and TV clubs.
2. The cinema and TV clubs.
3. Music and TV clubs.
4. Television and popular education.
5. Popular art.
6. Subsidised group travel.

Practical classes

As well as the theory classes there are numerous activities of a practical nature which include the following features:

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1. TV club methodology based on experimental sessions

This involves an analysis of television programmes providing subjects for discussion into which a whole range of social, economic, political, cultural and other questions can be channelled.

2. Arrangement of a drama evening

This is done by course members themselves and consists of reading a play, followed by discussion in which practical information can be given on how to put on a simple play (production, choice of works, direction, stage design, cost, etc).

3. A film forum.

4. A session on how to organise musical evenings in TV clubs.

5. A practical class of introduction to audio-visual equipment, its use and its maintenance.

6. General knowledge classes on rural hygiene and first aid for the sick and injured.

Outlines of these classes are sent to course members in advance. Audio-visual material, especially slides and documentaries, relating to the subject matter are used in the theory classes. Tape recordings are also used for the experimental drama and the musical evening.

Working groups

The course includes two hours a day of group work or small seminars on a range of subjects freely selected by course members. The working groups' conclusions are read and discussed at a general "forum".

Last year the course was run successfully on the lines described above, but certain improvements have been made in regard to the timetable, the length of talks and the utilisation of audio-visual material. However, the content of the course has not changed. A survey is in fact carried out at every course to obtain a direct assessment of its value; all such surveys have yielded very positive results and for this reason the programme has retained more or less the same form.

A file containing the following documents is distributed to all course members:

- Origins and foundations of popular culture.
- Social change, leisure and popular culture.
- Television and popular education.
- Promotion of cultural activities and relevant teaching methods.
- Methodology of the TV club.
- Community development and TV clubs.
- Methods and techniques of community development.
- Music and TV clubs.
- Drama and TV clubs.
- Introduction to rural hygiene.
- Health education and TV clubs.
- Subsidised group travel.
- The people and culture, by J Folliet.
- Travel promotion.
- Popular education groups and audio-visual techniques (UNESCO).

Complete collections of slides on the art and crafts of the regions represented on the course were used, the material being supplied by the ministry's photographic archives.

Twelve full-length films have been used for the "film forum" sessions.

In the practical classes on "Music and TV clubs" and "Drama and TV clubs", tape recordings for audio-visual presentations of these subjects have also been used.

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b. On the borderlines between school education and further education in France, there are schemes to train staff in the use of these communication techniques, both in schools and outside schools with adults, in the new towns being built under regional planning schemes. Their responsibilities often include both the production and use of audio-visual media.

OFRATEME in France has devised a continuous training programme for this new type of teacher.

The opening course of this programme took place in 1972. It lasted 5 days and was arranged as follows:

Tuesday	9.30 am:	Introduction of staff and course members - discussion designed to: .. establish the needs felt by participants; .. review the various aids which may be available to teachers and instructors and establish the complementary or substitutory roles of these aids in the light of their functions; .. present to course members an electro-mechanical theme on the basis of which (by applied analysis of content) a training process will be worked out with the trial inclusion of several aids or techniques (cf below).
	2.30 pm:	Review of training - and this course in particular - in the context of the development of the "Fos sur Mer project" and in relation to foreseeable tasks, seen in relation to the growth of the unit credit system, to patterns and conditions of permanent education and to the trend towards individualised training and self-instruction.
Wednesday	9.30 am:	Resumption of the work begun on Tuesday morning in the light of Tuesday afternoon work. Planning of the rest of the course in the light of conclusions reached.

On this basis, as part of the training process, a study will be made from Wednesday afternoon to Saturday afternoon (7 sessions) of opportunities, arrangements and motivations for the use of:

- printing techniques (type-setting, printing, layout, choice of type, etc);
- slide/tape presentation;
- the mini studio (video-tape recorder and camera);
- programmed learning.

The aids and techniques studied at the first course have been selected as a result of preliminary talks.

Different studies on the same theme using different aids or different themes using the same aids, may be considered.

During course no. 1 a demonstration of the CCTV studio and a presentation by the individual programme presenter will also take place.

In any event, arrangements for a "follow-up" will be made as soon as course no. 1 is over.

c. As our last example, we shall take a nation-wide, systematic and long-term scheme covering one sector of education: teacher training.

Under the VIth Plan, the Ecoles Normales d'Instituteurs in France should all be equipped with closed-circuit television by 1974-75. In some cases heavy equipment is involved (especially in the Ecoles Normales Académiques), but usually the equipment is lighter.

The installation of such equipment was unthinkable without retraining a number of teachers at different levels to prevent the use of CCTV being merely an expensive prestige operation for self-contemplation or the contemplation of others. This meant training them in modern techniques of group observation either live or recorded on video-tape, self-observation, observation grids, micro-teaching, etc.

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This appropriate Inspectorate of the Ministry of National Education accordingly launched a wide-ranging, long-term training programme drawing upon the skill efforts of OFRATEME and the Audio-Visual Centre of the Ecole Normale Supérieure of Saint-Cloud using their terms.

As an initial stage, all the directors of Ecoles Normales attended one of the 3 one-week courses arranged for them. The programme was as follows:

Monday — Introduction.
Presentation of 4 workshops selected for these courses.
Formation of 3 groups to attend these 4 workshops in rotation.

Group I - Workshop 1:	Methodological research on analysis of teacher behaviour recorded by CCTV or on film.
Group II - Workshop 2:	Contribution of schools radio/television programmes for the updating of teachers: live and recorded utilisation.
Workshop 3:	Contribution of psychology films to teacher training.
Group III - Workshop 4:	Use of a mobile television unit for observation of teaching situations. Problems of operating and utilising a closed-circuit.

Tuesday - Wednesday - Thursday

Visits by participants in 3 equal groups to the following establishments in rotation:

Group I - Workshop 1:	Ecole d'application de Filles, Versailles.
Group II - Workshop 2 and 3:	Centre Audio-Visual - ENS Saint-Cloud.
Group III - Workshop 4:	OFRATEME.

Friday	9.00-10.00 am:	Meeting of rapporteurs.
	10.00-12.00 pm: and 2.00-6.00 pm:	General discussion on topics and problems raised during the course.

These courses in Paris are now followed by courses in equipped Ecole Normales and, where possible, are intended for all the teaching staff of such establishments.

Here is an example of a course bringing together teachers from Ecoles Normales for boys (ENG)/and Ecoles Normales for girls (ENF) in the main town of an educational district.

Monday	2.15 pm:	Start of the course: general introduction.
	3.00-6.00 pm:	Description of their experiences by teachers, accounts of problems they encounter (the choice of subjects, presenters, and audio-visual material being made entirely at local level).

This opening session will provide the outline for the following sessions within the framework described above, and in particular a co-ordinated selection of local materials and of materials from outside sources can be made for subsequent work sessions.

While this session is taking place, two trainee teachers (one male, one female) will be filmed in a genuine teaching situation in two different classes.

Tuesday — (ENF-A = 1/2 ENF course members; ENF-B = 1/2 ENF course members)
(ENG-A = 1/2 ENG course members; ENG-B = 1/2 ENG course members)

ENF Premises		9.00 am	ENG Premises
ENF-A	ENF-B	ENG-A	ENG-B
Approaches to class-room observation (local material and material from outside sources).	Systematic approach to the teaching applications of AV material (material from outside sources).	Problems and methods of evaluation and monitoring. Possible separation into working groups.	(In mini studio) "mini studio" techniques, camera, video-tape recorders (sound and picture recording) "rerecording". Possible separation into working groups.

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11.00 am

Work of groups ENF-A and ENF-B reversed.

2.00 pm

ENF-A + ENF-B

Training study of professional behaviour.
Exercises in self-observation.
Successive presentation of filming done on Monday pm (in the presence of the teachers concerned).
Possible separation into working groups.

Work of groups ENG-A and ENG-B reversed.

Wednesday

Same programme as Tuesday, with groups ENG-A and ENG-B changing over to the left of the table and groups ENF-A and ENF-B to the right.

On Tuesday and Wednesday an educational psychologist (Ecole Normale) will participate continuously in work in each sector with the successive groups.

The 4 educational psychologists concerned will of course have attended the Monday afternoon session (with the assessment report on the course in view).

Thursday	9.30-1.00 pm:	The question of disciplines and multidisciplinary groupings.
	2.30-6.00 pm:	Pedagogic comparisons with 3 groups centered round the following disciplines: - natural sciences; - mathematics; - humanities.

Interschool multidisciplinary working groups should be set up on these lines, taking account, of course, of existing multidisciplinary teams in the Ecoles Normales. An educational psychologist will follow the work of each of the three groups. (The 3 group leaders will arrive Wednesday afternoon to complete preparations for the Thursday).

Friday	Meeting of all course members.	
	9.00-11.00 am:	Prerequisites for the inclusion of multi-media material in a learning strategy.
	11.00-1.00 pm:	Preliminary general outline of a critical assessment of the course. The final report will be drawn up by a team in co-operation with the educational psychologists and in liaison with a representative of the Centre Régional de Documentation Pédagogique and one of OFRATEME.

Along with such courses, OFRATEME also provides a more technical course in Paris for certain teachers and technicians to train them to use equipment to good advantage. The courses usually cover 6 half-days with the following programme:

Tuesday	2.00 pm:	Opening meeting; discussion on problems encountered by participants in their schools and colleges and adjustment of the work schedule in the light of this information.
	4.00 pm:	Theory of sound and picture recording.
Wednesday	9.30am-12.30 pm:	Practical work on CCTV.
	2.00-5.30 pm:	Studio work.
Thursday	9.30am-12.30 pm:	Practical work on CCTV.
	2.30-5.30 pm:	Utilisation of the episcope in teaching and production of teaching materials.

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Friday	9.30am-12.30 pm:	Technical and practical problems of sound and picture recording in the classroom.

In addition to these series of national and regional courses, a seminar has just been started in Paris at which, on 2 days a month, teaching staff responsible for CCTV training in Ecoles Normales meet specialists from OFRATEME and the Saint-Cloud Audio-Visual Centre.

This kind of retraining scheme, spread over 3 or 4 years and enabling observations, results and criticisms to be pooled, will undoubtedly yield far-reaching positive results and lead to the introduction of lasting improvements in teacher training through the use of new educational techniques.

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CONCLUSION

Teacher training and retraining in the use of audio-visual techniques thus take many different forms. The present inventory is undoubtedly incomplete the more so because it has taken the form of case studies. As it stands, it should at least serve to make teacher training staff think about the problems and, seek solutions appropriate to national and local situations on the basis of the examples cited.

However, we cannot conclude this survey without mentioning the effective action and long-term results of meetings, talks and seminars at an international level, in the forefront of which are those organised by the Council of Europe. Through their continuous endeavours in this field on behalf of documentation, co-production, the exchange of material and comparative or joint research, its working parties have done much to convince European authorities and educators of the potential contributions of audio-visual media to teacher training.

Symposia such as the one held in Palma in 1971, which are attended by representatives of all member countries, have done more to inform and convince than many books can, enabling experts to expound, and participants to discuss, for 5 days, the following ever topical subjects:

- the use of audio-visual media in training colleges in the context of the classroom; developments and future;
- the combined use of audio-visual media for individual or small group training; developments and future;
- the use of audio-visual media in the training of future teachers in institutes;
- the use of audio-visual media in the further training and in-service training of teachers;
- production and dissemination of audio-visual media for the initial and further training of teachers.

We shall end by expressing two hopes.

The first is that education authorities in every country will launch and pursue co-ordinated policies for teacher training and retraining in modern educational techniques, since they are almost invariably the spearhead of all educational innovations and serious reforms. The current spread of multi-media systems in schools and universities as well as in systems of education "at a distance" proves this, if proof be needed.

However, we should also like to see these national endeavours harmonised, supplemented and enriched at an international level and we endorse the wishes expressed by the participants at the seminar in Konstanz, mentioned at the start of this report, who asked for:

"- the establishment of a system for the exchange of information between bodies which are active in this field in different countries;
- the organisation at international level of working parties to promote systematic courses of educational technology in every country;
- supranational studies for a profile of training needs for teachers and specialists;
- synchronisation of national and international activities in order to make more effective use of intellectual and financial resources;
- international exchange of experts;
- a periodical summarising the best articles published in national reviews and reports of national and international symposia and seminars;
- circulation of a sample collection of media in use."

To these we would add our own wishes for:

- appropriate European radio and television programmes;
- the exchange of audio-visual materials and multi-media packages, produced for in-training of teachers to new media and techniques;
- the coproduction of homogeneous series of such documents and media, with every country making its contribution and dubbing in its language the materials produced by other countries.

Only the pooling of national and international resources will make it possible to reach the hundreds of thousands of European teachers quickly and train or retrain them effectively in the use of audio-visual techniques and modern educational media - a sphere in which, hitherto, training has been too brief, sporadic and eptemeral.

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NOTE

1. The programmes of training and courses contained in this report were supplied by the organisations concerned.

Many are drawn from 4 major documents and detailed references are given in the bibliography:

- report on the seminar on training programmes for specialists in educational technology, held by the UNESCO Committee of the Federal Republic of Germany at Konstanz in 1970;
- list of courses on audio-visual media run by the Educational Foundation for Visual Aids in Great Britain;
- the two booklets:
  .. programme of short courses
  .. programme of one year courses and one term courses for qualified teachers
  published by the Department of Education and Science in Great Britain.

2. While many training programmes in different languages quoted as examples above have been translated, the deliberately concise bibliography for a work published in French and English has had to be confined to these two languages.

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